Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS.

VOLUME X.] NEW-YORK, AUGUST 18, 1855. [NUMBER 49.

THE
Scientific American,
PUBLISHED WEEKLY
At 128 Fulton Street, N. Y. (Sun Buildings.)
BY MUNN & COMPANY.

O. D. MUNN, S. H. WALES, A. E. BEACH.

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Single copies of the paper are on sale at all the periodical stores in this city, Brooklyn, and Jersey City.

TERMS—$2 a-year,—$1 in advance and the remainder in six months.

Street Pavements.

Five years ago, in the SCIENTIFIC AMERICAN of June 1st, 1850, we presented three engravings of different kinds of pavements for streets, and expressed our opinions of the kind that would be the best for this city. At that time there were two kinds of pavements in use, viz.: the old cobble stone and the Russ; (Perrine's was just being laid.) We presented reasons against the cobble stone, Russ, and Perrine kinds, and advised our city authorities to adopt the small oblong trap block pavement, illustrated by one of the figures referred to. There was not then a single yard of such pavement in our city, but now quite a number of streets have been laid with it, and such has been the satisfaction it has given, that in a very few years the whole of our city will be paved with no other kind, as street after street of the old cobble stones are being lifted, and the beautiful little oblong blocks laid down in their place. It affords us no small degree of pleasure to witness our city authorities adopting any useful suggestions for the benefit of the city; but the greatest pleasure we have experienced relating to our new pavements, is to behold the satisfaction it has given to our carmen, and to hear the praises it has received from all our citizens.

The Ericsson under Steam.

The *Nautical Magazine* contains a letter from J. B. Kitching, one of those who went to Havre in the Ericsson,—giving an account of the voyage. We must say that its tone is not good, as it makes a charge against some "steam friends" who doubted that the Ericsson could be propelled faster, at a less cost, than other boats. For the horse power expended by her, in the passage across the Atlantic, we do not see that she consumed any less fuel than some other steam vessels. She was in ballast trim—having taken no cargo—yet it took 14 days to reach Havre. The economy of fuel by the Ericsson, (22 tuns per diem,) if correctly stated, is a strong argument in favor of steam, and is equally so against hot air.

Rain fell during nineteen days last month. It has been the most rainy summer in sixty-seven years.

Improvement in Horse Powers.

The annexed figure is a perspective view of an improvement in horse powers for which a patent was granted to H. H. Fultz, of Lexington, Holmes Co., Mississippi, on the 3rd of last month. The nature of the improvement consists in placing a driving wheel on the outer end of a bar, the inner end of which turns on a pivot shaft. The horse is attached as shown in the figure, at *d*, and the driving wheel gives motion to a vertical shaft through gearing, and a horizontal shaft.

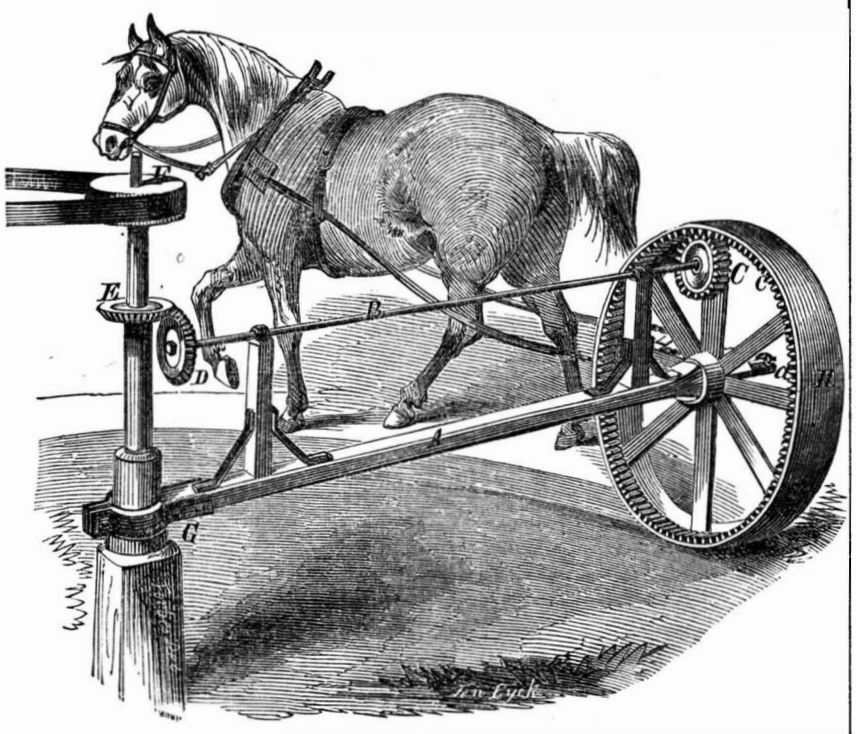
A is a bar the inner end of which is strapped to and turns on a pivot in the socket, G. On the outer end of A, the large broad wheel, H, is secured, and rotates on a journal of the shaft, A. It rests and rolls upon the ground. It has cogs, *c*, on its inner periphery, and these gear with a small pinion. C, on the outer end of the small shaft, B, which is supported and rotates in bearings on uprights secured to bar A. D is a bevel wheel on the inner end of shaft, B, and E is a bevel pinion on a stout vertical shaft supported in the pivot post that sustains the bar, A. F is a pulley on said shaft from which the power is taken by a band to drive other machinery, such as cotton gins, presses, thrashing machines, &c. The horse being attached as represented, the driving wheel, H, rotates, and the shaft, B, drives pinion D, which takes into the pinion, E, giving a rapid motion to its vertical shaft, thus operating the driving pulley, F, from which power is taken to drive other machinery by a belt.

This horse power is very simple to make and run at a good high speed. It can also be constructed very cheaply. One of these has been used for a considerable time by the patentee, for driving a cotton saw gin of fifty saws, and it works admirably. Any mechanic of ordinary ability may construct such a horse power if he can obtain the castings for the wheels; if not, these may be made of wood boiled in oil. The figure tells the whole story, and requires no further description to render it any clearer to the reader.

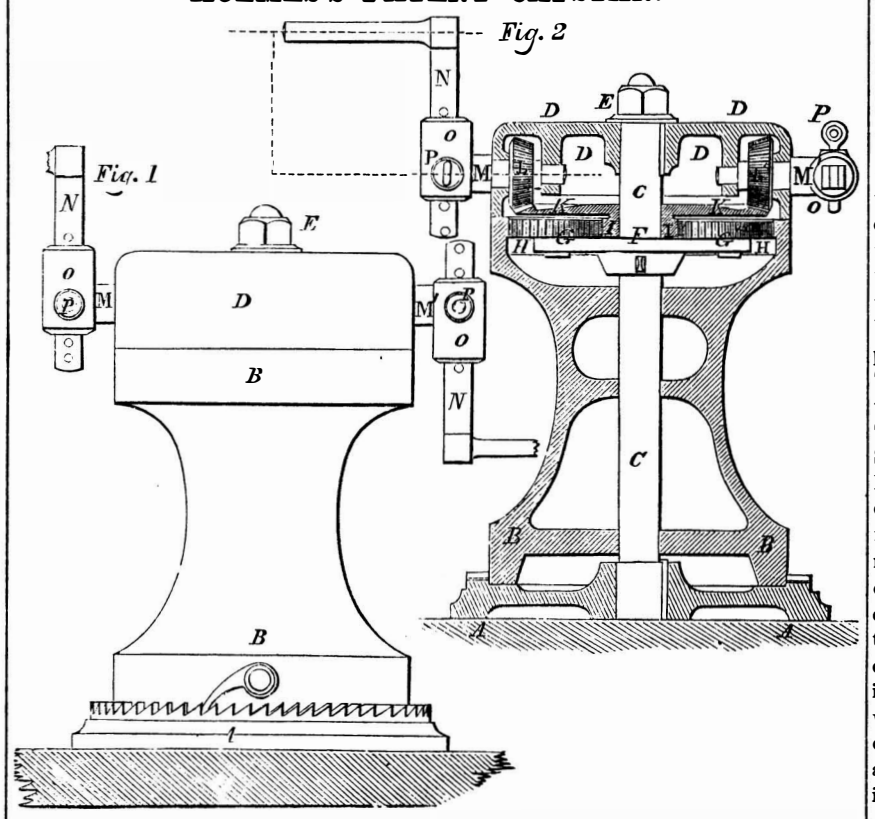
For Southern and Western localities, where cheapness of construction, simplicity of management, and effectiveness of operation is wanted, this power will come into extensive use. It is one of the latest novelties in its class.

More information may be obtained by letter addressed to Mr. Fultz, at his residence above named.

FULTZ'S HORSE POWER.



HOLMES'S PATENT CAPSTAN.



The accompanying engravings are views of an improvement in Capstans, for which a patent was granted to John B. Holmes, of this city, on the 7th of last month.

Figure 1 is a side elevation of the capstan, and fig. 2 is a longitudinal vertical section, showing the interior. Similar letters refer to like parts.

The nature of the invention consists in the arrangement of a stationary drum head in combination with a stationary base and spindle and revolving rope barrel or body, said barrel being moved by gearing and cranks.

A A is the bottom part or bed plate of the capstan, and of ordinary construction, secured to the flooring or deck of the vessel: the eye in its center receives the vertical spindle or axis C, made of wrought iron and keyed fast to the bottom plate, A. B B is the cast-iron and hollow barrel of the capstan, revolving freely upon the center shaft, C. D D represents the hollow top or drum head; it is also made firm and stationary with the spindle, C, and kept in the proper proximity to B, by means of the top nut, E, thereby allowing the barrel to move closely betweed the bed plate, A, and the top, D. F is a round plate, firmly secured to the spindle, C, and placed in a proper position to form the support, and the fixed centers for the two spur wheels, G G', these wheels are alternately in gear, with the toothed rim, H H, fig. 2, of the barrel. B B, and in the same time with a third wheel or pinion, I I. This pinion also forms one piece with the large bevel, K K, and both of them are made to revolve loosely upon the fixed spindle, C, maintaining their respective positions to G G'. The hollow top or drum head, D D, contains the bearings for the two shafts, M M', which carry in the interior of the head the two pinions, L L', gearing both into the bevel wheel, K, whilst the other extremities of the shafts project through the top of the capstan, for the purpose of receiving the cranks, N N, then by turning the cranks, proper motions are imparted to the wheel, K, with its pinion, I, and by means of the intermediate wheels, G G', to the barrel, B. The shafts, M M', are provided with cast-iron sockets, O O, arranged so as to allow the crank, N N, to slide through them for the purpose of varying the throw of the latter, as set forth; eye bolts, P P, being provided in the sockets, to keep them in the proper position, when once set and adjusted.

In the use of the common capstan, the men are obliged to jump over the cable or chain, as they walk around with the levers. This very serious objection is wholly done away with in the present improvement, while a compact, convenient and effective capstan is furnished, the expense of which, considering its increased utility, is small.

For more information address the assignee of the patent, J. R. Pratt, No. 62 Attorney st., this city.

Rapacious Claims of Patentees.

Some patentees having discovered one process, set up claims to all others which produce the like results. Their object is to shut off opposition to their interests, and they have not the candor to admit the just claims of *after* inventors in the same line, when these interfere with their profits, although the inventions may be very different This spirit has caused more patent litigation in our country than any other. The greatest law-suits have been between contending patentees in the same line of business. The recent decisions of the Supreme Court, U. S., on the Morse Telegraph and the Woodworth Planing Machines, have greatly rebuked this exacting and encroaching spirit. It is to be regretted that so much patent litigation has resulted from the rapacity of some men in obtaining re-issued patents embracing new claims, not embraced in nor discovered when their original patents were taken out, and if encouraged by the courts, it will tend to deter improvement and invention, and defeat the very purpose of the law established to "encourage discovery and improvement" in the arts, by granting patents to each for *his own* improvement. *

The pressure of the wind increases according to the square of the velocity. It amounts to 12 1-2 lbs. on the square foot in a storm moving at the rate of 50 miles per hour, and 50 lbs. on the square foot in gale of 100 miles per hour velocity.

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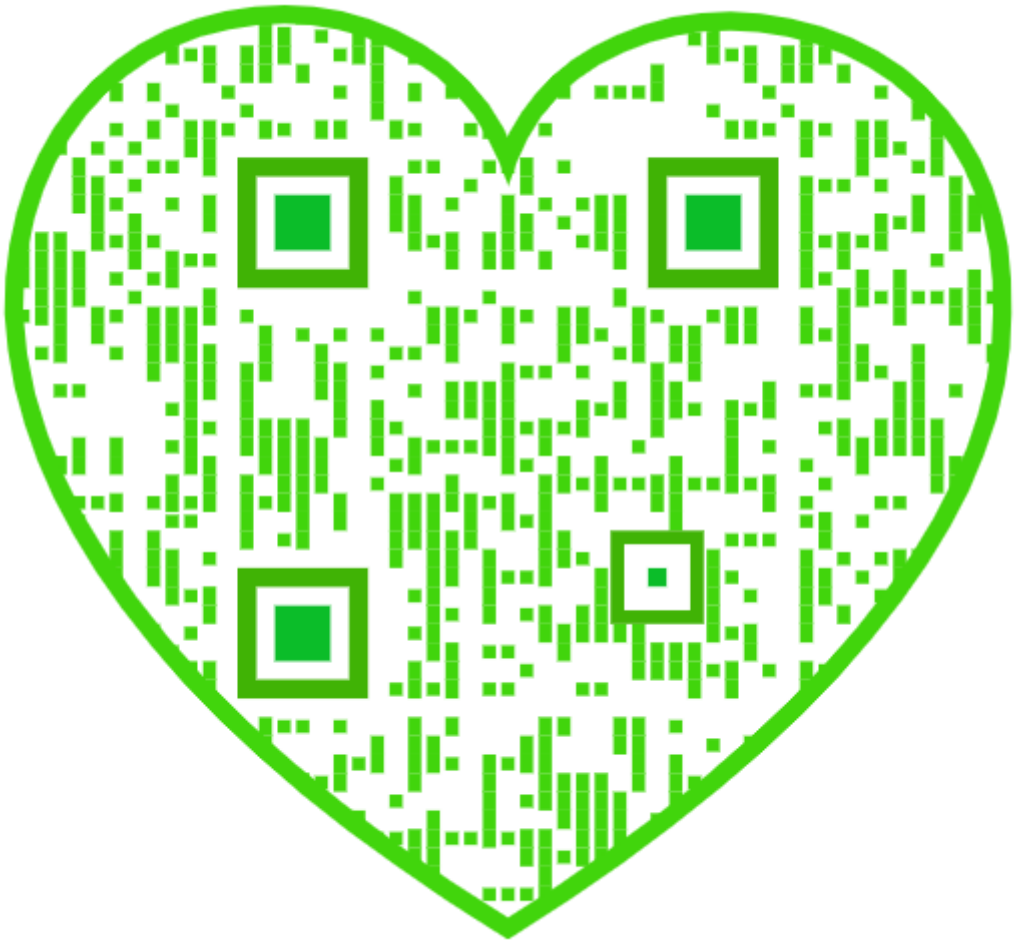

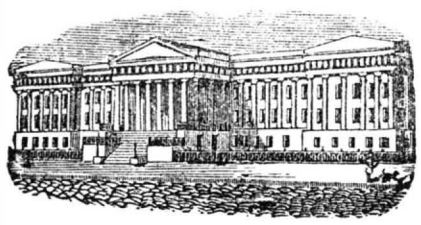

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office,

FOR THE WEEK ENDING AUG. 7, 1855.

MODE OF SECURING TIRES UPON WHEELS—John L. Irwin, of Franklin, Ala.: I claim attaching or adjusting tires to wheels, by having the ends of the tires bent so as to form lips or projections, a a, through which a screw bolt, C, is passed, for the purpose of drawing the ends of the tires together, and fitting the same tightly to the fellies or rim, the rim having a recess, d, made in it to receive the lips or projections and screw bolt, the recess being covered by a cap, D, substantially as shown and described.

[This invention is designed to save time, labor, and fuel, in the setting of tires; also to prevent accident in case of the loosening of the tire. All our readers are familiar with the common mode of tire setting, viz.: by making the hoop a trifle smaller than the wheel, and then expanding the iron by heat until it will slip on; the subsequent cooling of the tire causes it to contract to its original dimensions, and consequently to bind tightly upon the wheel. Mr. Irwin dispenses with this *round about* process, Instead of welding the ends of the tire together, he hooks them over, and connects them with a screw bolt. A recess is cut in the felloe for the bolt and hooked ends of the tire, which enables the operator to screw up the tire tightly after it has been applied to the wheel. If the tire becomes at any time a little loose, all he has to do is to apply a wrench to the bolt and tighten up. Under the old plan, the diameter of the tire would have to be reduced and reset.]

SHIP WINCHES—Peter H. Jackson, of New York City: I do not claim a pawl or pawls acting on their ratchet wheels on either side of the center carrying the same, neither do I claim applying a pawl, hand spike, socket, and retaining pawl to a ratchet wheel, as this has been done, but only for rotating the said ratchet wheel in one direction, and I am aware that pawls with counterpoise weights to make them act upwards instead of downwards, are well known.

I am also well aware that winches and windlasses have been fitted by means of external ratchets and hooks, and internal ratchets and pawls applied at the outer end of the head, so that the same can be rotated in either direction. Therefore I make no claim to rotating winches or windlasses in either direction, as this is well known and in common use.

It will be evident that my arrangement of ratchets and pawls has important advantages over such arrangements, because there is nothing to prevent a rope being easily wound around the winch or cast-off, whereas, in cases where the hand spike is applied at the outer end of the winch or windlass head, the same has often to be pulled out to allow the rope to be taken off, but in mine that is not the case, and besides this, there is more strain on the shaft carrying the parts when the hand spike is applied at the end thereof, than when it acts close up to the bit or timber carrying said shaft. I am not aware that a double acting pawl has ever before been applied beneath a ratchet wheel, and fitted with the counterpoise weight to make the same act upwards, and also allow for turning said pawl under to change sides, when said pawl is combined with a double acting pawl, set on, and moving with a hand spike and socket (or lever,) and applied to the upper part of said ratchet wheel in such a manner as to rotate the same in either direction, thereby producing a double acting purchase with only one ratchet wheel, and obtaining the advantages specified.

I claim the reversible or double acting pawl, 4, below the ratchet wheel, in combination with the double acting pawl, a, to which power is applied to rotate said ratchet wheel in either direction, in the manner, and as specified.

PROPELLING VESSELS BY THE DIRECT ACTION OF STEAM ON THE WATER—Wm. J. McIntire, of New York City: I claim protecting the steam from condensation by discharging at the same time with it, some non-condensible gas or gases, or fluids, or both in combination, in such manner as form an envelope for the steam, for the purposes as described.

[This is a curious way of using steam power. Why not tie up the steam in a woolen blanket?]

MANUFACTURING CARPETS—John G. McNair, of West Farms, N. Y.: I claim the fabric substantially as described produced by the double wefts, one or both of which is party colored, in combination with the two sets of warps one to divide and ingrain the wefts, and the other to bind in the wefts, substantially as and for the purpose specified.

DENTAL CHAIRS—D. W. Perkins, of Rome, N. Y.: I claim, first, tightening the ball and socket joint, so as to secure the body of the chair in the desired position by means of the band, F, which encompasses the socket, E, the band being operated upon by a clamp, G, as shown, whereby the parts, e, f, g, of the socket may be pressed or bound snugly around the ball, d, substantially as shown and described.

Second, I claim attaching the head rest, N, to the inner edge of the plate, O, by hinges, and having the head rest secured at the desired angle of inclination by a segment rack, P, the plate, O, being allowed to slide laterally upon a plate, Q, at the upper part of the bar, R, which bar works in an opening, S, in the back of the chair, and is secured at the desired point by the rack, v, and spring catch, w, for the purpose of rendering the head rest capable of perfect adjustment, as set forth.

[The seat of this chair rests upon a ball and socket joint, combined with which are suitable catch locks, so that when the chair is turned into any desirable position it will there remain fixed until again altered. There is also a peculiar arrangement of the head rest and back, which are very advantageous. Such an improvement as this has long been wanted by dentists, surgeons and others, and can hardly fail to find an extensive introduction.—Notwithstanding the great variety of movements of which Mr. Perkins' chair is capable, it is still very simple in construction, strong and substantial in its parts.]

MACHINE FOR MEASURING AND WEIGHING GRAIN—Charles A. Postley, of Philadelphia, Pa.: I claim the combination substantially as, and for the purpose set forth and described, of the weighing mechanism, or its equivalent, with the series of measures upon an endless chain which carries them in succession under the hopper, under the strike, and over the scales.

I am aware that in the grain weighing machines the cut off has been so arranged that it is operated by the weight of the grain received in the hopper, and when the desired weight is attained, this therefore, broadly, I do not claim.

But I claim the combination with the lever, M2, and valve, O, respectively, of the lever, M, operated by the cam, N, or its equivalent, and of the platform, Z2, and levers, g, and g2, by which the said valve may be operated by the motive power of the machine, or failing this at any time, by the weight of the grain itself, substantially as set forth and described.

GAS REGULATORS—S. W. Brown, of Lowell, Mass.: I claim constructing and attaching a quick silver cup, F, or its mechanical equivalent, within the inside of the float through which the gas passes on its way to the burners, in combination with the induction tube, D, or its mechanical equivalent, for the purposes of constituting a self-acting valve or valve seat, to evenly regulate the flow of the gas, essentially in the manner and for the purposes set forth.

ADJUSTING BLINDS TO WINDOWS, &c.—C. E. Parker, of Boston, Mass., and Joseph Sanger, of Watertown, Mass.: We do not claim fitting blinds in grooves in the casing, and having a recess or box formed over the casing to receive the blind, for this is not new, iron doors and shutters having been previously so arranged.

But we claim attaching the ropes or chains, e e g g, to the two parts, C C, of the blind, so that a portion of the ropes or chains, e e, will pass on the outer side of the casing, A, and within the apartment or house, and thereby allow the parts, C C, of the blind to be adjusted as desired, without raising or opening the sashes, as herein shown and described.

[In this improvement the blinds, instead of being hung on hinges and made to open and close in the ordinary manner, are divided into two parts and caused to slide up and down in the window frames, like the common window sashes. By means of a simple application of cords and pullies the blinds thus arranged are moved from within the apartment, thereby obviating the inconvenience of opening the window for that purpose. The blinds can be made to disappear in the casement when not wanted for use. The simplicity, cheapness, and utility of this patent will commend it every where to notice.]

SAWING LUMBER—R. E. Parkhurst, of Brunswick, Me.: I claim, first, the method described of connecting the rack bar to the carriage, so that the bar may have a slight motion, independent of the carriage, for the purpose set forth.

Second, I claim the dogs, P R, constructed and operated as described, in combination with the notched bar, F', whereby they may be instantly moved, and set to accommodate them to different lengths of log, as set forth.

Third, I claim the described method of connecting the dogs with their sliding guides, P, whereby they may be operated longitudinally and transversely in the manner set forth.

Fourth, I claim the pointed screw dogs, V' V', operating in the manner substantially as set forth.

Fifth, I claim the saw guide, H2, so constructed as to be thrown out of the way by the log, in the manner set forth.

Sixth, I claim the double dog, S', which when out of use may be sunk flush with the surface of the head block, and may be run in and out, in the manner described, for the purpose of sawing the butt and point of shingles.

MOLASSES PITCHERS—Edward Page, of Worcester, Mass.: I claim the application to molasses cups of a vessel to catch the molasses which drips from the cup, and the vessel to swing, as described.

SEED PLANTERS—Silas G. Randall, and James H. Jones, of Rockton, Ill.: In that class which open the soil and deposit the seed by dropping rather than by forcing, a device has been used with a round bivalvular point entering the ground, and dividing in such a manner as to displace the earth and drop the seed, also another device by which a solid naked wedge pierces the soil, and the seed, on its withdrawal, is dropped into the opening. Also another device by which the piston protruding below the drill, is driven upwards by the pressure of the earth, and receiving the seed in a cavity in its side, on lifting the machine, is pressed down by a spring, and discharges the seed against the earth, while the piston fills the hole in the ground; we therefore do not claim any of these.

But we claim the use of a sheath and a tongue filling it, so combined with a lever and forcing handle, that by means thereof, or their equivalents, the sheath and tongue may be struck into the ground as one solid piece, after which the tongue may be raised, leaving the sheath in the earth as a lining until the seed is deposited through the lining substantially as described.

FORMING SCREW-THREADS, &c., IN THE NECKS OF GLASS BOTTLES—Amasa Stone, of Philadelphia, Pa.: I claim, in the construction of tools for forming screw-thread, angular or other scores in the necks and orifices of glass, earthen, or other bottles, and other articles, making the plug which forms the interior of the orifice to turn with the bottle, jug, or other article, while the material of the orifice is worked around it, substantially as described.

TANNING APPARATUS—George W. Smith, of Nanticoke, N. Y.: I claim surrounding the ordinary tan leaches with a water chamber constructed in the manner and for the purposes herein set forth, not intending to limit myself to a particular form or mode of structure, but comprising any form by which the leaches are surrounded by water spaces, substantially as described.

CONSTRUCTION OF ARTIFICIAL LEGS—Addison Spaulding, of Lowell, Mass.: I disclaim the knee joints, as patented in France by Ferdinand Leopold John, Nov. 11, 1835, wherein the central pins withstand all the wear and shock of the leg when in use.

I also disclaim any part, device, or thing embraced in the patent granted to Johnathan Russell, August 17th, 1852.

I also disclaim the application and use of india rubber as applied to move the leg, as in the patent granted to John L. Drake, August 31st, 1852.

I also, and finally disclaim the surface of deer skin stuffed with hair, and attached to the bottom of the foot, described with the invention patented by B. Frank Palmer, August 17th, 1852, as such will not retain any elasticity when used, but will cake together as hard as the wood of which the leg is composed.

I claim, first, the knee spring, F, or its mechanical equivalent, for throwing forwards the portion of the leg marked A, at each step of the artificial leg, essentially in the manner and for the purposes set forth.

Second, I claim the ankle spring, K, or its mechanical equivalent, for swinging up the forward portion of the foot on the axis or pin, M, or other turning point, at each step of the operator, essentially in the manner and for the purposes set forth.

Third, I claim the chain or rod, G, connected and combined with the india rubber, J, or their mechanical equivalent, which is secured in the heel of the foot, to allow the leg, A, a slight elasticity when placed upon the ground and tipped forward by the operator, to prevent the shock upon the cords and nerves in the stump of the natural leg, essentially in the manner and for the purposes set forth.

SELF-ADJUSTING TONGUE IRON—W. J. Temple, of Princeton, Mass.: It may be found best, in some cases, to leave off the nut on B, and connect the lever, M, directly to it, by making a hole or holes in its end or near it, and the form and arrangements of the other parts be varied by the circumstances of the particular cases.

Therefore I do not claim the particular form or arrangement, but I claim making the part, B, movable and self-adjusting, in connection with the lever or any similar means to raise it, in the manner and for the purposes set forth.

PRINTING TEXTILE FABRICS—James Melville of Roebank Works, and Joseph Burch, of Crag Hall, Great Britain: We claim, first, the mode of printing in two or more colors, by means of a movable color apparatus, in connection with the pattern printing roller traversing laterally on a slide rest, by means of which the colors in a repeat are printed without shifting the printing roller, as described.

Second, the application of a slide rest guide apparatus, for guiding and regulating the action of the pattern printing roller, when the mode of connecting such slide rest apparatus with the impression cylinder, is by means of a grooved shaft traverse movement as described.

Third, the mode of adjusting the position of the printing roller at the repeat shifts, by means of notched or serrated plates set to correspond to the different repeats.

Fourth, the mode of printing carpeting and other fabrics, by means of printing rollers corresponding to the several colors in the repeat, set, one in advance of the other, in the direction of the main cylinder's revolution that revolution being continued until the colors are duly impressed upon or into the fabric.

PREPARING FLOCKS—L. W. Boynton, of Worcester, Mass.: I claim the combination of the screw, a, with the brush or brushes, as A and B, when the brush or brushes have both a rotary and reciprocating motion, and the whole is constructed, combined, and made to operate substantially as described.

PAPER PULP—Louis Koch (assignor to P. P. Sweeney & Michael Lacour,) of New York City: I claim the combination of a series of rollers increasing gradually in diameter and speed, in proportion as the wood or fibrous substance is extended or pressed out. The face or circumference of one of every pair of extending rollers having a greater speed than the face of its corresponding roller, producing thereby a slight dividing or separation motion in connection with the pressure upon the substance, which separates each fiber without destroying the same, for the purpose of making pulp from wood and fibrous vegetable substances, in manner substantially as described.

RAILROAD SIGNALS—Jacob Busser, of Philadelphia, Pa.: I do not confine myself to the bells for producing the alarm, as the same may be effected by means of a gong or any other suitable device. Nor do I confine myself to placing the parts above and below ground, as shown and described, as it may be better that the parts be all placed under ground excepting the bells and hammer, or their equivalents, the bells, spring, cams, &c., have all been used in various ways for producing alarms. I therefore do not claim them separately.

I am aware that signals of various kinds have been so arranged and connected to a railroad track as to be operated by the passing locomotive. These I do not claim independent of my special means of arranging and operating them.

I claim the combination of the cams, A B, spring, C, and the rod, E, operating upon the bell or its equivalent, H2, and spring, P, which are placed upon the draw of the bridge, so that a locomotive, in approaching the draw, will sound the alarm, whilst a locomotive coming from the draw, will pass over the same cams without sounding the alarm, substantially as described.

IRON HOUSES—D. D. Badger, of New York City: I claim the method described of securing the bases of the columns to the breast summers or lintels, by bolting each on the inner side to a broad flanch, c, and keying it on the outer side by a key, d, whereby they are properly secured against any movement back or forth on the breast summers or lintels, or against falling outwards, but are not prevented from falling inwards, when they become insecure.

[The patentee of the above improvement is a member of the firm of Badger & Co., who are very extensively engaged in the business of erecting iron buildings. To their skill as mechanics the city of New York is indebted for many of the beautiful specimens of architecture in iron which now adorn her streets. The nature and object of Mr. Badger's invention is set forth in his claim. It is an effective improvement.

We hail every improvement relating to the construction of edifices of metal with great pleasure, for they seem to us to be ushers in of the desirable time when stores, dwellings, and all kinds of buildings will be rendered safe from the ravages of fire—that great destroyer of human life, property, and prosperity.]

MACHINE DRILLS—James Conner and Thomas Newby, of Richmond, Ind.: We claim the use of the lever, N, vertical shaft, K, spring and trigger, R and S, spring, Z, and cam, A', by which the action of the drill in drilling is regulated or governed in its depth, arranged and operating substantially in the manner and for the purpose set forth.

HANGING MILL STONES—Robert Cochran, of Cincinnati, Ohio: I claim the movable cock-eye, 2, placed in the recess, 3, 3, on the top of the spindle, to co-operate with the cock-head, 4, fit in the balance-rings, 5 5, or their mechanical equivalents, the whole being substantially as described, and for the purpose set forth.

STRAW CUTTERS—D. C. Cumings, of Fulton, N. Y.: I do not claim the upward cut in itself, as that has been done before.

But I claim, first, the upward cut, when the material is fed in by a distinct device for that purpose, by which the dirt is separated from the straw or other material to be cut, passing out beneath the feed rollers instead of collecting on the stationary guard or cutting plate, substantially as and for the purposes specified.

Second, operating the movable feed roller by means of a spur wheel hung in a vibrating frame or yoke with a universal coupling for connecting its axis with that of the roller, when said roller is supported on spring bearings independent of each other, substantially as and for the purposes specified.

CUTTER-HEAD FOR IRREGULAR FORMS—Daniel Dunlap, of Concord, N. H.: I do not claim merely applying to a plane iron a contrivance to gauge its depth of cut; nor do I claim the combination of knives in any manner with a rotary cutter head, so that said head shall serve as a guide or directrix to the form or pattern carrying the material to be dressed.

But I claim combining with or arranging in connection with the rotary guide, B, and each of its knives, in manner as described, the cylinder crescent gauge, D, whereby, while the pattern or former is borne against the guide head, the material will not only be reduced by successive cuts, until brought down to its proper depth, but the danger of accident diminished, as specified.

I also claim the described improved mode of applying and securing each of the cutters to its stock or supports, whereby, by a force acting longitudinally on them, they are not only held in such direction, but at the same time are pressed laterally against the curved inner faces of the gauges, D D, in manner and for the purpose, as specified.

CORN PLANTERS—R. W. Fenwick, of Brooklyn, N.Y., and Reinhold Boekden, of Jersey City, N. J.: We claim nothing new in the loose covering interior ring or tube, K, separately considered, at the bottom of the planting tube, and are aware that a conical valve at the bottom of the planting tube, connected with a seed delivery slide for operation together by a lever or handle, distinct from any thrust or pull imparted to the tube itself, and employing a much more complicated and different arrangement of operating gear has before been used.

We claim the combination and arrangement, as shown, of the swinging seed slide, D, valve, H, and tube, K, for the purpose set forth.

[This hand corn planter is exceedingly simple, and from its construction can hardly ever fail to drop and cover the seed in the most perfect manner. The nature of the improvement consists in having the seed-slide turn on a center, and in connecting it with a conical valve at the bottom of the planting tube, and with a sliding tube, which takes up dirt for covering the corn. When the end of the planting tube is struck into the ground the valve is operated, and with it the slide, whereby a proper quantity of seed is taken from the seed box in the upper part of the implement, and dropped; at the same time the covering tube is made to take up dirt and cover the corn. This is a very excellent corn planter.]

WRENCH—Alden Graham, of Roxbury, Mass.: I do not claim the arrangement of a plate provided with ratchet teeth, in which a pawl catches, so as to allow the implement to be operated without removing it from the nut or other article to be turned as ratchet wrenches have been previously used.

But I claim fitting the jaws, E, when turning on pivots in the slot, and operating the same by a ring, c, having a screw thread, a, on its inner surface, to work between threads, f, cut on the outer surface of the jaws, in the manner and for the purpose set forth.

[This is a very novel device for a wrench. Two nearly straight pieces of steel are attached by pivots through their centers, to the end of a suitable handle and form the jaws by which the nut to be turned is seized. The jaws are placed at right angles to the handle, and are hung in a slot in the latter. The backs of the jaws are furnished with screw threads, and are encircled by a corresponding screw ring, by turning which the ends of the jaws may be opened or closed at pleasure, and thus adjusted to suit any size of nut. There is a ratchet arrangement which permits the turning of the nut without removal of the wrench after the jaws have been adjusted. The combination of the two devices is ingenious, and results in the production of a very compact and highly useful instrument.]

BRAIDING MACHINES—Liveras Hull, of Charlestown, Mass.: I claim the arrangement of the bobbin, the pawl, and the weight within the racer, or with respect to one another therein, substantially as specified, the same presenting advantages, as specified.

OIL DRIPPERS—J. M. Thompson of Holyoke, Mass.: I claim the arrangement of the chamber, E, in combination with the tubes, C and F, as constructed for the purpose specified.

ATTACHING HOOKS AND EYES TO CARDS—Addison Capron, of Attleborough, Mass., and J. S. Dennis, of Somerville, Mass. (assignors to themselves and H. M. Richards, of Attleborough, Mass.): We claim the described combination, or other substantially the same, of a feeding receiver, made to receive the articles, and maintain them at proper distances asunder, a card or sheet-feeding mechanism, and sewing machinery on one or both sides of said receiver.

APPARATUS FOR DISCHARGING ATMOSPHERIC ELECTRICITY FROM TELEGRAPH WIRES—John N. Gamewell, of Camden, S. C. Patented in England September 15, 1854: I do not claim the use of discharging points connected with the ground to carry off atmospheric electricity.

I claim the method of obstructing the passage of atmospheric electricity along the line, from one discharging point to another, or their equivalents, provided for a similar purpose, by reducing the capacity of the conductor forming said line, at and immediately after its junction with said discharging points, h h, whether that reduction consists in the employment of an inferior conducting material, or in reducing the dimensions of the conductor, as set forth, or any other equivalent method of reducing the conducting capacity of those parts of the line, thereby forcing the discharge of the atmospheric electricity from the points, h h, as described.

[This invention relates to an apparatus for discharging into the earth all atmospheric electricity with which the telegraph wires become surcharged when the atmosphere is in a highly electrical state, thereby obviating all danger of injury to the magnet or telegraph instrument, and enabling the telegraph to be operated during the severest thunder storm. The theory on which this instrument is constructed is based upon the established principle that atmospheric electricity will leap from one conductor to another, but that a galvanic current will not pass through the smallest space without a continuous conductor.

Mr. Gamewell provides an angular coil of wire, placed near the telegraph instrument or receiving magnet. The wire composing the coil is either made tapering, and diminishes from the size of the telegraph wire to a very small diameter, or in lieu thereof, the elbows of the coil are made of a poorer conducting metal than the other portions. This is for the purpose of causing the atmospheric electricity, when it arrives at the elbows, to leap from them on to some conducting points of better metal, which are placed almost in contact with the elbows. The conducting points are all arranged on a metallic bar, and this is connected with the earth by a rod. The apparatus is placed between the end of the telegraph wire and the telegraph instrument, so that all electrical currents, in approaching the instrument, must pass through the elbowed coil. The conducting points attract off the atmospheric electricity, and convey it safely to the earth, while the galvanic current passes freely to the instrument. Telegraph companies are so practically acquainted with the damage to property and the pecuniary loss occasioned by the total suspension of operation on their lines, in consequence of the pranks of atmospheric electricity, that we need not point out to them the advantages of this improvement. When it comes into use, the editors of our daily papers will have no occasion to announce, as they do now quite frequently, that in consequence of a severe thunder storm prevailing at such-and-such a place, all telegraphic communication was suspended, and important intelligence delayed. This invention is one of importance in the art of electro-telegraphing. It has been patented through the Scientific American Agency, in Europe Cuba, &c.]

MANUFACTURE OF DAGUERREOTYPE CASES—Halvor Halvorsen, of Cambridge, Mass., (assignor to Horace Barnes, of Boston, Mass.): I am aware that boxes have had sheets of paper or pasteboard glued or cemented to their surfaces; I therefore do not claim the mere application of paper by such means.

I claim the improvement in the manufacture of picture cases or other articles of like character, from a composition of shellac and fibrous material, as described, the same consisting in making said case or article of the said composition, and one or more sheets of paper, and pressing and combining the whole together in a press or between dies, as described, so that the paper shall combine or connect itself directly with the composition, without the aid of cement interposed between them, and serve to add great strength to the article so made.

And I claim the improvement of ornamenting the surfaces of the impression of the die with burnished gold, substantially as set forth, the same consisting in applying the gold to the surface of the sheet of paper, or its equivalent, burnishing it while on said surface, and laying the said burnished surface in contact with the surface of the die, and pressing said paper and the plastic composition together, and into the die, so as to force the burnished gilding paper and composition upon it, and produce the result as specified.

I also claim the extension of the paper up the inner surfaces of the sides of the case, and by means of pressure in the mold, the same being for the purpose of enabling me to affix to the side the velvet covered frame for the support of the picture, the mat, and the glass thereof.

PLANE SCRAPER—Leonard Bailey, of Winchester, Mass.: I claim combining the scraper or plane cutter, with the stock, by means of the movable holder and its adjusting mechanism, substantially as specified.

LOOMS—John Broadbent, of Oak Grove, Ky.: I claim, first, the insertion of the filling thread by means of two hooks or sets of hooks, arranged to operate one on each side of the cloth, one to carry the filling thread to the middle of the shed, where it is met by the other, which takes the threads from the first and returns with it, thus drawing the thread entirely through the warp, substantially as described.

Second, the employment of the said two hooks or sets of hooks, each as a deliverer to give the thread to the other, and receiver to receive the thread from the other, alternately, as described, by which means a good and fast selvedge is made on both lists of the cloth.

Third, the employment of two tending forks, j j, made of any form, and arranged and operated in any manner, substantially as described, to conduct the filling thread into proper positions to be caught by the delivering filling hooks.

Fourth, giving the two filling hooks or sets of filling hooks, each in turn, a sufficient movement laterally to the path in which they move, to insert the filling, for the purpose of enabling one to pass the other in the shed, to take from it the filling thread, substantially as described.

Fifth, I claim giving the receiving hook a sufficient movement toward the middle of the cloth after it has drawn the filling through, and before the falling back of the lay, substantially as set forth, to disengage it from the thread of filling which it has just drawn through.

[The principal feature of this invention consists in the employment of two hooks instead of a shuttle for putting the filling into the warp, which enter the sheds from opposite sides, the one to take the filling thread from a bobbin or one of a series of bobbins conveniently placed on the side of the loom, and carry it half way through the shed, where it is met by by the other hook, which takes the thread and retreats, thus drawing the filling entirely through. The filling thus drawn through, is double, but the threads are laid evenly side by side, without the possibility of twisting, so that the texture and appearance of the goods remains precisely the same as if the shuttle were employed. All the other points of the invention are more or less subservient to this principal feature. The invention is applicable to nearly all kinds of hand or power looms, either for plain, fancy or figured goods, as well as wide or narrow carpets. Among the advantages which the hooks possess over the shuttle, are first, in running lighter, and consequently requiring less power. Second, in being less subject to wear and tear—the shuttle motion and its appendages being the most expensive part of a loom to keep in order. Third, in obviating the damage likely to occur by the shuttle flying from the loom. Fourth, in seldom requiring the stoppage of the loom, an accident which is not very liable to occur,—As there are no shuttles to be filled, the loom would not be required to stop for a whole day, since the bobbin can be renewed at any moment without stoppage.

We regard this improvement as one of a very important and valuable nature. We understand that it is now being adopted at Paterson, N. J.]

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GAUGE ATTACHMENT FOR HAND SAWS—A. F. Gray, and J. C. Fincher, of Thibodeau, La.: We claim attaching to one side of the blade of a hand saw, a gauge formed of two strips, a b, and lugs, c, having slots, d, made in them, through which slots set screws, e, pass, the screws also passing through the saw blade, substantially as shown and for the purpose set forth.

[This gauge is adjustable on the saw blade at the pleasure of the operator, and it use is to regulate with precision the depth to which the saw cuts into the stuff. In cutting tenons, panel, cabinet, and every species of work where nicety is desirable, the improvement will be found of value. It can readily be applied to old or new saws, as it does not require that the saw shall be made specially for it; when not wanted for use the gauge may be quickly removed. It is very simple, and its expense is trifling.—Every carpenter or wood worker should have one.]

SPOKE MACHINE—Wm. Van Anden, of Poughkeepsie N. Y.: First, I claim the use of the upper and lower adjustable cutter holders, made adjustable laterally on their axes, substantially as described, in combination with the curved stationary cutters, G, and adjustable cutters, H, and collars for adjusting the same, or their equivalents, for the purposes substantially as set forth.

Second, I also claim the use of the adjusting yoke and the attachments thereto, for adjusting the cutter holders, or their equivalents, in combination with the cutter holders and guide-ways on the spoke rest carriage, or their equivalents, substantially as set forth.

Third, I also claim the use of the double-acting adjusting levers, or their equivalents, for the purposes set forth, in combination with the cutter holders and their axles; and their combination with the pawls attached to the double-acting adjusting levers, and cams for operating the same, or their equivalents, for the purposes substantially as set forth.

MANUFACTURE OF PLATE GLASS—Phillippe Stenger, (assignor to Pascal Yearsley,) of Philadelphia, Pa.: I claim the application of tractile force to the manufacture of sheet glass, by means of the mechanical arrangement described, or its substantial equivalent.

BED SPRING OF LEATHER SPLITTING MACHINES: J. B. Tay, of North Woburn, Mass.: I claim the improved bed or back spring, as composed of a thin guard or spring sheet of metal, a, and a series of separate springs, b bb, &c., united to or forming part of a plate, B, as described.

TEMPLES FOR LOOMS—James Smith, of Laurel, Md., (assignor to himself and Wm. Botterill, of Howard County, Md.: I am fully aware that burrs, toothed and serrated surfaces have been formed for many purposes, and knowing that a variety of wooden rollers, with pins inserted, have been used for rollers, I wish however to be understood as disclaiming such devices, and instead confine myself solely to the following distinguishing devices.

I claim the temple roller formed with solid raised conical shaped pin teeth, having a hinged cap to its case, all attached to a flexible rod, h h h h, in combination with the forked spring, c d d d d, when adjustable in brackets, e e e e, f f f f, g g, the whole arranged substantially in the manner described, and constituting very improved temples.

DESIGN.

LABELS ON BOTTLES AND JARS—Wm. A. Rogers, of Decatur, Ala.

Recent Foreign Inventions.

NEW METALLIC ALLOYS.—Messrs. de Ruolz and Fontenay, of Paris, have invented an alloy which may be employed for almost all purposes to which silver is usually employed. The improved alloy is composed only of silver, copper, and purified nickel; which metals may be combined in any suitable proportions, but the following are preferred:—Silver 20 parts, nickel from 25 to 31 parts, and the rest up to 100 parts in copper. An alloy is thus produced containing 20 per cent., or thereabouts, of silver, and constituting silver of the third degree of fineness, thus reversing the proportions of the ordinary composition of the second degree; this latter containing 800 parts of silver and 200 of alloy, whereas the improved compound contains 200 parts of silver and 800 parts of alloy.

The copper employed must be the purest obtainable in commerce; and the nickel should be purified by some suitable process. The means preferred for the purification of the nickel are as follows:—When treating impure nickel of commerce, the metal is to be dissolved in a mixture of hydrochloric and nitric acid, or in dilute sulphuric acid. In the latter case the dissolution must be expedited by electric or galvanic agency, and the operation should be carried on in vessels of platinum. The solution is then submitted to the action of a current of chlorine, and the iron impurities precipitated therefrom by boiling with carbonate of lime—care being taken not to have too great an excess of this latter substance.

The nickel is then precipitated by carbonate of soda, and taken up again by hydrochloric acid, and diluted with a large quantity of water. The solution is then saturated with chlorine gas, and an excess of carbonate of baryta is added thereto. The liquor must then be left in repose in a cold state; and the nickel may either be precipitated in the metallic state by means of a galvanic current, or precipitated in the form of an oxyd, which oxyd may be afterwards reduced to the metallic state.

Although the proportions above given are those generally employed for the production of the improved alloy, the proportion of silver may be variously increased up to the following limit:—silver 30 parts, nickel 31 parts, and copper 49 parts: total, 110 parts.

It is advantageous, first, to melt the copper and nickel in the granular state, and afterwards to introduce the silver; and the flux to be employed in this state consists of charcoal and borax, both in the state of powder; and the ingots obtained are to be rendered malleable by annealing for a considerable time in powdered charcoal.

The patentees claim the production of an alloy composed of silver, copper, and nickel, in whatever proportions these metals may be combined, which alloy has all the appearance of real silver, and may be used for various purposes as real silver.

In connection with the above invention, Messrs. Ruolz and Fontenay have also patented some improvements in the treatment of certain metals for producing an improved metallic alloy, which consist principally in additions to, and modifications in, the process before described.

It has been found by experiment, first, that this new combination of metals can be so far advantageously modified as to employ the following proportions: copper as high as 49 parts, nickel 31, and silver from 20 to 40; making a total of 100 to 120. Second, that phosphorus can be usefully introduced into these alloys, and, in certain cases, extracted after the required effect has been produced by it.

The nickel and copper are first melted, then brought into a granular state, and are afterwards replaced in the crucible and re-melted; after which the silver is added. The best flux which can be used is an intimate mixture of borax and powdered charcoal. The ingots, when obtained, must be slowly annealed at a cherry-red heat, in a closed vessel with powdered charcoal.

As to the use of phosphorus:—1. If it be required to obtain cast articles, such as statuettes and objects of art, a certain quantity of phosphorus must be introduced into the combination. The introduction of phosphorus can be effected in several manners—first, by metalling the mixture of the three metals with a mixture of equal parts of acid phosphate of lime and powdered charcoal, brought to a red heat. Secondly, the mixture of the three metals may also be heated together, with a mixture of 100 parts of phosphate of lime, 50 parts of sand, 75 parts of borax, and 10 parts of charcoal. As regards the relative proportions of the metallic alloy and the phosphorated mixture, described above, the following are the most suitable for cast articles:—1000 parts of the alloy of silver, copper, and nickel, and about 150 parts of the phosphorated mixture. The quantity of phosphorus to be added depends upon the length of time taken in heating. Thirdly, the following method is most preferable. The operation is as follows:—Phosphuret of copper is prepared in the ordinary way, and its richness in phosphorus is ascertained by analysis. This phosphuret of copper is then re-melted and granulated; after which the following mixture is melted:—Phosphuret of copper 49 parts (of such a strength as to be capable of introducing into 100 parts of the alloy from 1 to 20-1000ths of phosphorus), nickel 31 parts, and silver from 20 to 40 parts, or more, as desired by consumers. It must be well understood that the silver must not be introduced into the alloy until the phosphuret of copper and the nickel are completely melted, and combined or mixed. The effects produced by this introduction of phosphorus are to augment the fusibility of the alloy, causing it, when melted, to run in a very limpid state, to obtain a closer grain, to avoid all porosity, and to have a greater homogeneity, and finally to render the whiteness greater.

2. In order to preserve the advantages arising from the presence of phosphorus when articles are required to be forged, rolled, or stamped, it is necessary, during this operation, to restore the ductility and malleability which the phosphorus has to a great extent impaired. To effect this, after having obtained regular and homogeneous ingots by the aid of the phosphorus, the phosphorus must be almost totally eliminated or abstracted, which may be effected by submitting, during a long time, the metal to a cherry-red heat, in a close vessel, with powdered charcoal.

The patentees claim the introduction (and in certain cases the elimination) of phosphorus in the manufacture of alloys of silver or other metals.

[The above information is very useful.

The resignation of the venerable Dr. Wayland, President of Brown's University, Providence, R. I., is announced. He has occupied the chair of that institution for 29 years—almost a generation.

Machinery and Hand Labor.

At a recent meeting held in this city, ostensibly called a "Mechanics and Workingmens' Meeting"—the contract system for cleaning the streets was denounced, and one of the speakers was exceedingly severe on the street sweeping machines. In a flight of nonsensical oratory he exclaimed, "tell us not of contracts to clean the streets with machines, when the work can be done by hand."

There may be something wrong about making contracts for cleaning the streets; this we will not discuss, but we do say, that any man who declaims against the use of machinery for any purpose, whatever,—at the present day—must be a knave or an ignoramus. The man who denounces the use of machinery, to show that he is honest in what he says, should march out to the wilderness to gain his living, with only the dress, weapons and implements furnished him by nature. He must not take a coat on his back, for the cloth of it is woven by a machine. He must not take rifle, axe nor knife, for all these are made by machinery. He must go forth to make his house like the beaver, and take his prey like the panther.

We frequently hear of machinery being denounced because of its superseding hand labor, but machinery has not decreased the demand for labor; it has only changed its direction; it has become the drudge, man its director. And if machinery is to be condemned, where shall we begin? The seamstress may complain that sewing machines have taken away her labor. That may be, but it would just be as reasonable to complain of the needle and thread she uses, for they are made by machinery. The laborer who has been sweeping the streets may complain of the street cleaning machines, but was not his own shovel made by a machine. A few moments reflection upon the uses of machinery ought to convince the most ignorant and skeptical of the benefits conferred upon man by machinery. It is a test of civilization—it is a grand civilizer. Take it away from man and he sinks into the most degraded savage.

Preserving Vegetables.

We have received a number of letters requesting us to give the best means of preserving vegetables and fruits in a state as nearly fresh as possible. The information is no doubt of great importance. We can only give our opinion respecting a method which we think would be successful if tried fairly. It consists in expelling all the moisture from the vegetables and fruit at a low heat, in such a place as an oven. Then placing them in common glass bottles, heating them up to almost 212°, then corking them up tight, sealing them over with wax. Moisture is necessary in the decomposition of vegetable substances; therefore, we think the above plan would answer. The Swedes have pursued this plan for preserving potatoes, for a great many years. On page 261, vol. 4, SCIENTIFIC AMERICAN, there is a method illustrated for preserving fruits, such as grapes, apples, &c., by carbonic acid gas; it appears to be good. Those who can have ice houses built like the one illustrated a few weeks since, on page 356, of course will find it the best method of preserving fruit with its original flavor and freshness.

Cutting Steel with Tin—Gumming Saws.

MESSRS. EDITORS—In 1828, Ezra Goodell, (millwright,) had occasion to *true* a circular piece of tin of about three inches in diameter, and for this purpose he put it into a quick lathe used for turning rake teeth, and held a ground file against it. To his surprise, the file was cut by the tin, instead of the latter by the former. Among other experiments he tried the gumming of saws with a piece of sheet tin in the same manner, but he found that it left such a hard surface on the saw that it could not be filed. This led him to abandon further experiments in that line. At that time there was no SCIENTIFIC AMERICAN to record such experiments for the benefit of society.

Cleveland, Ohio. O. P. STEVENS.

Captain McClure.

In the British House of Commons, the committee charged with the consideration of the subject of rewarding Capt. McClure, for his discovery of the Northwest passage, have recommended that the sum of $25,000 be presented to him.

Reaping Machines.

The *American Farmer* gives an account of a trial between Hussey's, McCormick's, and Atkins' Reapers in a heavy field of oats. All of them worked well, but the self-raking attachment of Atkins is described as giving it a superiority over the others. The three machines cut 36 acres of oats in seven hours, or 12 acres each.

A gentleman of our acquaintance made a visit through a great portion of Long Island during the past week, to witness the farmers getting in their harvest. He was astonished at the great number of reaping and mowing machines employed, and the farmers assured him that but for them they would not have been able to secure their large crops. Hand help could not be obtained; good laborers were receiving $2 per day and board, and enough of them could not be obtained at that. The reaping machines have proven to be "the farmers' best friends this season."

Progressing Backwards.

It is rumored that the British government are about to re-enact the newspaper stamp act. The plan of throwing off the stamp duty of 2 cents on every copy printed, and substituting a postage charge to that amount when before, mailed papers were sent free, does not work well for the government. There is a great falling off in the revenue.

A Book for Tinsmiths.

In answer to some inquiries, John H. Hanna informs us, that a book named the *Tinman's Guide*, illustrated with copper and steel diagrams, was published by Thomas Quantril, a tinsmith, in Washington, D. C., a few years since. It is the only work of the kind ever published in our country. The author is now no more; but his widow resides in Dover, Ohio, and has the plates of the work and a revised copy.

Steam Organ.

A mechanic in Worcester, Mass., has built an organ to be operated with steam as a substitute for the air blast. The steam is used at a high pressure, and its tones can be heard more than three miles distant. Well, steam is a genius. He now whistles, sings, plows, spins, weaves, and a hundred other things, useful, sentimental, and musical.

Reform in Weights and Measures.

We are informed by a correspondent—J. Edi, of Verona, Wis.—that Charles Durkee. Member of Congress from that State, will make an effort to bring the subject of reforming our weights and measures, before the next Congress. We hope our readers in every Congressional Dist. will bring this subject to the notice of their representative. There will be very little opposition, we should think, to such a needed and common sense reform.

A Wonderful Voyage.

The Canadian Barque *Arabia* has recently made a voyage from Liverpool, England, across the Atlantic, thence up the St. Lawrence, to Quebec, and discharged a cargo of iron; then went up to Kingston, C. W., took a load of lumber and sailed up to Chicago. It is said however, that the form of vessels built for the Lake navigation, is unfitted for that of the stormy Atlantic.

Coal Burning Locomotive.

The "*Taunton*," a coal burning locomotive, constructed on Dimpfel's principle, which has been illustrated in our columns, has been running with great success for five weeks on the Reading Railroad. Anthracite coal is used for fuel on it. Another of the same class of engines has been running on the Providence and Worcester Railroad, using Cumberland coal, with success.

To Keep Milk Sweet.

A. Boyd, a correspondent, informs us, that he has practiced a peculiar method with much success of preserving milk sweet in the pans It simply consists in placing a piece of new hammered iron, or three twelve penny nails in each tin pan, then pouring the warm milk on them. He believes that electricity has something to do with producing the result. He had tried many experiments before he hit upon this one, which he found to preserve the milk sweet for a longer time than other plans tried by him.

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New Inventions.

New Invention—A Mechanical Calf.

The following description of a cow-sucking apparatus is too good to be lost. We would wager our ancient friend Solomon a cent or two, if he were still living, that his proverb about there being "nothing new" under the sun, is a little short of the mark in the present instance. Pumping, of all sorts, has been carried on extensively from time immemorial, and in these latter days human individuals have learned how to "pump" each other. But we believe the subjecting of cows to this interesting process is an entirely new idea. Our correspondent, we trust, will pardon us for publishing his letter; we assure him that it will do no harm, for it will save him the useful purpose of a caveat:

"Messrs. Editors—I have an idea it is as yet rather a rough invention; at least, it has not as yet resolved itself into a tangible shape to the outward organs of vision. And when it does, it is possible that it will be so crude and unlike any other thing, that it will "suck the cows." Well, that's just what we want of it. "Is there anything new under the sun?" Now before you answer, just wait to hear what my new idea is. Well, are you all attention? then here it is: An arrangement by which to remove the milk from any number of dairy cows simultaneously, in the short space of say ten to fifteen minutes.

This I propose to accomplish by placing the cows all in stalls adapted for keeping them stationary during the process. Lay a pipe the whole length of the stalls under the cows, and immediately below their bags or reservoirs of milk. Connect the cows with this pipe by means of flexible tubes each tube furnished with four mouths, which will be made of india-rubber so as to bite closely upon each of the four outlets (teats.) Now the cows being thus connected with the lower or main pipe, this pipe will extend into the cream or dairy house, and is then connected with an exhaust pump, when, if my ideas are correct, one hand will, in a few minutes, extract all the milk, and it will run down into the main pipe, thence into the proper reservoirs in the dairy for creaming.

You will see my idea is to pump the milk from each cow and all by the one and same process. I base my plan upon the fact that the calf removes the milk by producing a vacuum with his tongue and organs of the mouth, and the milk at once flows from the bag to supply it. Am I right; will my plan work? if so, is it worth a fortune. I intend to carry it into practice, so far at least as one experiment will do it. G. W. S.

Broome County, N. Y."

We would inform our correspondent that he is right as to the vacuum part. How well his idea will operate in practice remains for him to try. We trust he will give an account of his experiments. This is certainly a brilliant invention. Dairy maids, like Othello, will have occasion to exclaim that their "occupation's gone."

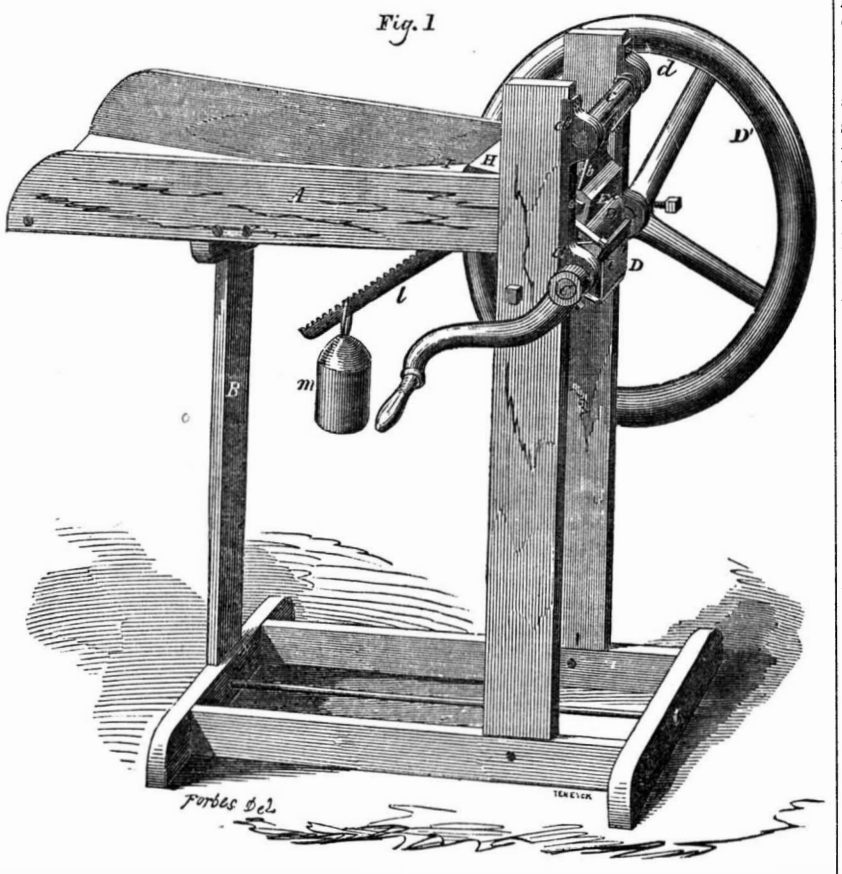
New Mode of Hanging Window Sash.

On the 26th of June last, a patent was granted to D. N. Dunzack, of Salem, Mass., for a new method of hanging window sash, to the claim of which, when published on page 338, Scientific American, we added a brief notice of its advantages. In addition to the remarks we then made—as the plan since then has been fairly tested—we have to name some more advantages which it possesses. First, by using hollow castings, one half the iron will suffice for a weight. Second, the sashes are more easily removed from the frame than in the common mode of hanging them, so as to allow facility for cleaning and glazing the windows. Third, the cord is not exposed to view at all, which gives them a better appearance. Fourth, there is no necessity for pockets being cut in the casings.

The window frame or casing is constructed in the usual manner for balanced sashes, viz.: having boxes on each side of the frame. Within each box there is placed one weight, which has a pulley attached to one of its ends, around which passes a cord, which also passes over two other pulleys attached to each side of the frame at the center. One end of a cord is attached to the lower side of the lower sash, and the other end of it to the bottom of the upper sash. It is thus that both sashes are connected together by one cord and one weight on each side. The weights move without any jarring or noise. By the common method of hanging sash, a window requiring weights of 18 lbs. can be operated by the new method with weights of 8 lbs., thus saving 10 lbs. of iron. This improvement deserves the attention of all house builders.

SIMONTON AND WICKS' HAY AND STRAW CUTTER.

Fig. 1

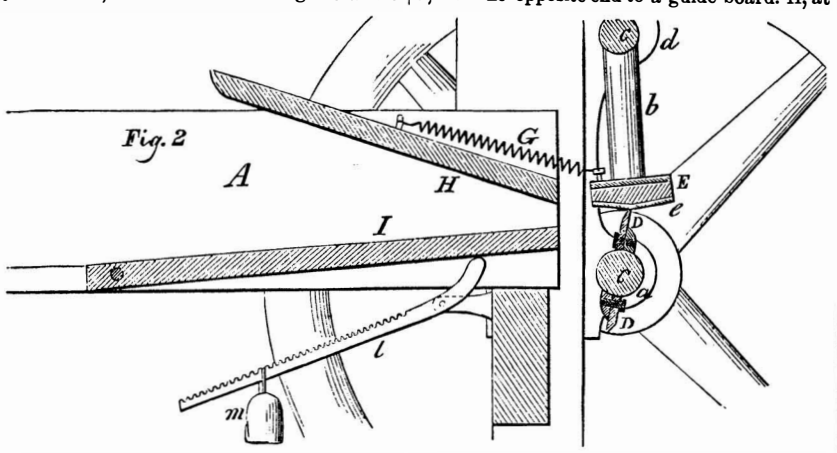


The accompanying engravings are views of an improvement in straw cutters for which a patent was granted to Thomas C. Simonton, and Loren J. Wicks, of Paterson, N. J., on the 10th of April last.

Fig. 1 is a perspective view, and fig. 2 is a longitudinal vertical section through the center of the machine. Similar letters refer to like parts The nature of the improvement consists in the employment of a knife cylinder operating in connection with a vibratory bed, whereby economy of power and superior cutting action are obtained. A represents the feed box of the machine of the usual form, and supported in the usual manner by a frame work, B. At the front end of the frame, B, and about in line with the bottom of the feed box, there is a cylinder, C, having two knives, D D, attached to it, said knives extending the whole length of the cylinder, and parallel with it.—The knives are attached to the cylinder at opposite points on its periphery.

The axis of the cylinder runs in suitable bearings, *a a*, attached to the frame, B, the ends of the axis extending a short distance beyond the bearings, one end having a fly wheel, D, upon it, and on the opposite end a crank.

Directly above the cylinder, C, there is a bed, E, which has two uprights or arms, *b b*, attached to its upper surface. The upper ends of these uprights or arms are connected with a shaft, *c*, which works in bearings, *d d*, attached to the frame. The under surface of the bed, E, is slightly convex, and just touches the edges of the knives, D D, when in a vertical position. G is a spiral spring, one end of which is secured to the inner side of the bed, F, and the opposite end to a guide board. H, at



the front end of the feed box, A. The under surface of the bed, E, is provided with a layer of raw-hide, *e*, or other suitable material in order to prevent the edges of the knives from being injured by coming in contact with the bed. I is an adjustable throat piece, the inner end being secured to the sides of the feed box by pivots so as to allow the outer end to be raised or lowered to govern the length of the cut.

Operation—The straw to be cut is placed in the feed box, A, and a rotary motion is given the cylinder, C, by turning the crank, and the knives, D D, as they rotate cut the straw which passes between their edges and the under surface of the bed, E, which vibrates or moves forward by the pressure of the knives as they bear against it while cutting through the straw—the bed returning backwards as the knives pass it by the action of the spiral spring, G, the knives and bed, by their operation, giving the proper feed motion to the straw. The feed motion may be modified, however, so that the straw may be cut longer or shorter by adjusting the throat piece, I, and therefore enlarging or contracting the orifice or mouth of the feed box through which the straw passes by the lever and weight, *l m*, so that the straw cannot pass too freely through the orifice or mouth.

The patentees state that it cuts straw, hay, and corn stalks, wet or dry, equally well, and that it is durable, simple, cheap, and adapted to horse or hand power.

More information may be obtained by letter addressed to them at Paterson, N. J.

Electro Magnetic Engine.

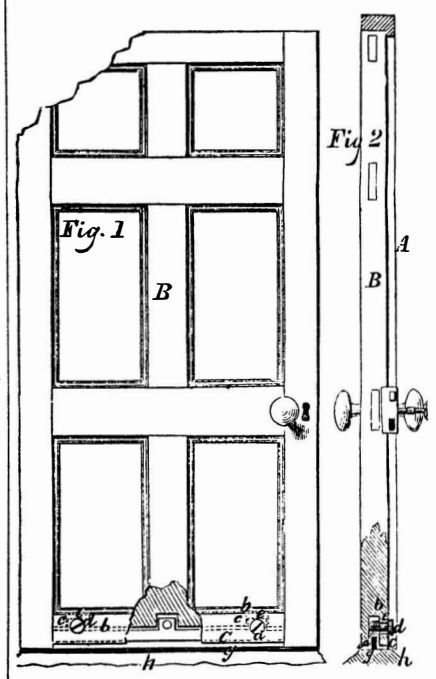
The Superintendent—John S. Gustin—of the Quinsigamond Iron and Wire Works, near Worcester, Mass., has put an electro magnetic engine into an old boat, and has tried it, but not with any thing like the shadow of success to supersede steam. The principle of it appears to be the same as Prof. Page's, illustrated in Vol. 7, Scientific American.

Patent Door Weather Strip.

The accompanying figures represent an improved weather strip for doors, for which a patent was granted to Martin Croke, of this city (New York,) on the 26th of June last.

Fig. 1 is a view of the inner side of a door, and fig. 2 is a transverse vertical section. The same letters on both figures indicate similar parts. The nature of the improvement consists in placing a strip or strips of india rubber within a slotted metallic bar, which is fitted in a groove in the lower end of the door. The bar is adjusted in the groove by screws. The object of a weather strip is to keep the space between the edge or foot of the door and the sill or saddle perfectly close, to exclude dust, wind, and rain.

B represents a door attached to one side of the casing by hinges, *a*, in the ordinary way. The lower edge of the door, B, has a groove, *b*, cut in it, which extends the whole width of the door, and within this groove there is fitted a metallic bar, C, the upper edge of which has projections, *c*, attached to it, through which set screws, *d*, pass, said set screws passing through oblong slots, *e*, in the door on its inner side. In the under surface of the bar, C, there is a longitudinal groove or recess, *f*, fig. 2, in which a strip or strips of india rubber, *g*, are fitted, and secured therein in any proper manner. The lower end of the strip or strips, *g*, of india rubber bear against the upper surface of the sill or saddle, *h*, of the door, when the door is closed, as shown in fig. 2, and keeps the lower end of the door or space between the lower end of the door and the sill or saddle, *h*, perfectly weather tight. And in case the india rubber becomes worn, in consequence of use,



the bar, C, may be lowered by adjusting the set screws, *d*, which secure the bar in the groove, *b*, in the lower edge of the door. The heads of the set screws may be of any proper form so as to be rather ornamental than otherwise.

The weather strip as described, effectually prevents rain, and also the cold, from entering the house underneath the door. The bar, C, may be adjusted with the greatest facility by loosening the screws, *d*, and the india rubber will not wear the sill or saddle like the ordinary wooden weather strips.

Elastic weather strips have been arranged with springs, so that a wooden strip may be pressed against the sill or saddle. In these the springs soon rust, become worthless, and besides wear the carpet or floor cloth within the house, and the sill or saddle soon becomes worn in consequence of the friction of the weather strips in passing over them. This one is superior to those in every respect.

For more information address W. Messer, Agent, 68 Wall street, this city.

Lactic acid, in doses of 20 drops, to be taken in half an ounce of water, is reported to be highly useful in those forms of dyspepsia which resist alkalies. It deserves trial.

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Scientific American.

NEW-YORK, AUGUST, 18, 1855.

Important to American Inventors.

A most important patent case, in which an American inventor was concerned was decided in the Court of Queen's Bench, Guildhall, London, on the eighth of last month, by a special jury, Chief Justice Campbell presiding. It was a proceeding by *scire facia* to repeal a patent granted to Thomas Hancock, in 1843, for improvements in the manufacture of india rubber goods. The alleged ground for the repeal of the patent was,that at its date, Hancock, the patentee, was not in possession of the invention. Last year,—as stated on page 373 vol. 9 SCIENTIFIC AMERICAN—the defendant, Hancock in this case, sued R. Ross for infringement of his patent, but the Jury did not agree in the issue, and they were discharged. Since that time, Charles Goodyear being in England, the parties interested with him have become the pursuers of Hancock, and the issue was nothing less than the repeal of his patent on the one hand,or those selling American vulcanized india rubber goods being held liable for damages to him, on the other. Goodyear and Hancock were examined at great length, before the Jury, who decided after a few minutes' consultation, in favor of the latter, thereby establishing his right to recover damages against all who have sold the American vulcanized rubber goods in England. The claim of Hancock was, that he by long study and experiment had discovered, that when rubber combined with sulphur was submitted to the action of a high degree of heat, in certain ways pointed out, it could be made to resist thereafter the action of heat and cold, and become permanently elastic, which process he called "vulcanizing." Mr. Goodyear claimed the same thing. This controversy has been occupying the English courts for many years, and the result is another and an exceedingly important lesson to every American inventor, not to procrastinate in securing patents abroad—especially in England. If Charles Goodyear had not exhibited unwonted delay in securing a patent for his invention in England, he would have swayed the whole trade, (and a great one it now is) of vulcanized india rubber goods in that country; but instead of doing so, he is now reduced to the necessity of paying another—Thomas Hancock—for the use of his own invention.

In 1842 Mr. Moulton, an Englishman, resident in America, went over to England with some specimens of Goodyear's vulcanized india rubber and exhibited them to Charles Macintosh & Co., of Manchester, and endeavored to make a bargain, by the sale of the secret. When asked what Mr. Goodyear expected for it, they were told £50,000—a quarter of a million dollars—and no bargain was concluded. Messrs. Macintosh however, acted somewhat honorably, for they advised Mr. Moulton to secure a patent, but this he did not then do, and as Hancock was a partner of the firm, by the specimens of the vulcanized india rubber left with him, (the very manufacture he had long been in search of,) he was incited to make numerous experiments, until he discovered the secret for himself. When he did so he secured a patent, and was just two months ahead of Mr. Goodyear in enrolling his specification—the latter having delayed until Jany., 1844, in taking out his English patent.

Hancock admitted that the specimens of Goodyear's india rubber cloth left with him, suggested the experiments which led to his discovery; and Lord Campbell in summing up the evidence, said "it was not handsome in him (Hancock) to look at the specimens and try and find out the secret, and it was to be regretted that Goodyear should not have the benefit of the invention; but the question for the Jury was, whether before Goodyear secured his English patent, Hancock had invented the process, for if he had he was entitled to their verdict." As stated, the Jury found a verdict for him in a few minutes.

We present the substance of this case as one of peculiar interest to all inventors of improvements, which may be useful in Britain. The near relationship which the telegraph, the railroad and steamship, have established between kindred and civilized nations, has excited, and is exciting the human mind to wonderful activity, in the field of invention, and he who first originates a new and useful improvement of any kind, unless he hastes to secure it by patent, may expect to find himself, so far as foreign security is concerned, in the same predicament as Charles Goodyear.

American inventors should bear in mind that, as a general ru e, any invention which is valuable to the patentee in this country, is worth equally as much in England, and some other foreign countries. Three patents,—American, English and French,—will secure to an inventor exclusive monopoly to his discovery among seventy-five millions of the most intelligent people in the world.

Locomotion—Resistance of the Atmosphere.

Two weeks ago (in No. 47) we reviewed an article which appeared in the N. Y. *Tribune* on Locomotion, wherein it was stated that the resistance of the atmosphere was the only hindrance to railway trains running at the rate of several hundred miles per hour. We exposed the fallacy of such ideas; but the *Tribune* has found a defender in the Rail Road *Advocate*. It says "the *Tribune* had not said that the atmospheric resistance was the principal resistance, at the present attained railroad speed, but *substantially* that it *would become* the principal resistance at unattained high speeds, referring we presume to speed of 100, 200, or 500 miles per hour. When the SCIENTIFIC had *proved* the resistance of the atmosphere to be such a mere trifle, at 50 miles per hour, why did it not show how trifling it would be at 100, or even 500."

The *Advocate* is wrong The *Tribune's* language is as follows: "Huge worlds move through space with motions swifter than any which the belligerents at Sebastopol can give to their missiles they hurl at each other. *What hinders a proportionate velocity in vehicles on the surface of our planet, is the resistance of the air.* Were it not for *this, railroad trains* could be *very economically* moved at the rate of *several hundred* miles per hour." We never twist or quote a cotemporary wrong to garble its main idea for any purpose whatever. The language of the *Tribune* says it as plain as A B C, that but for the resistance of the atmosphere, railroad trains could be moved *very economically* at any speed above the present rate, to several hundred miles per hour; in short that the resistance of the air is the only resistance to rail road trains moving as fast as the planets,—68,000 miles per hour is the velocity at which our planet moves through space. We exposed the fallacy of such ideas, by showing the amount of resistance of the atmosphere on a train with 50 superficial feet frontage, and moving at the rate of 50 miles per hour. Our data were derived from Charles Haswell's (M. E.) established tables of atmospheric resistance, and which are to be found in all good works on phneumatics; and rail road trains are subject to the same laws as all other bodies moving through the atmosphere. The *Advocate* supposes the existence of such laws, and lays down propositions based upon *probabilities*, and yet it asks why we did not show the atmospheric resistance on trains running at 100 or 500 miles per hour. What an unreasonable question; we took 50 miles per hour as a high speed. Talk about the resistance of the atmosphere on rail road trains, running at the rate of 100 and 500 miles per hour, when our fast trains only run at the average speed in motion of 36 miles. Our rail road Superintendents and Engineers must laugh at the idea of atmospheric resistance being the cause of this low speed of their trains; and that if it were but removed they would whisk along *very economically* at the rate of 100, or 500 miles per hour.

The *Advocate* furnishes a demonstration of the pressure of steam required to overcome a frontage resistance of 500 lbs., (a mere trifle) on a train running at 50 miles per hour. It presents a higher steam pressure than we did, but the result is the same, inasmuch as less steam at the high pressure is required; it is the quantity of steam that overcomes the resistance, no matter what may be the length of stroke, or diameter of driver. The atmospheric resistance would not prevent our rail road trains running at the rate of 100 miles another day, if that were the only hindrance to running them economically. Friction, concussions, and the attraction of gravitation, are the great obstacles to the high speed of rail road trains,—concussions from bad tracks being perhaps the greatest. Our State Engineer, J. T. Clark, in his report for last year, says, (page 15,) "the better condition of the track has prevented the expense of repairs for machinery from increasing, with the increased rates of speed." Not a word of increased difficu ties from atmospheric resistance.

We asserted years ago, that trains could be run with ease at the rate of 100 miles per hour; and although some weak-minded and unreflecting persons may see a huge and unsurmountable difficulty in the way, from atmospheric resistance, and may be waiting for some plan to remove the air from the track, we are glad to know that men capable of forming safe opinions are becoming awake to this very question; and as a finish to our remarks, we quote the following from the London Railway *Gazette*, July 14, received by us two weeks after we penned the review of the *Tribune's* article: "The statistics of railways abundantly prove the urgent need of more substantial, safe, and efficient permanent ways than those hitherto in use, adequate to the increase of weight, speed, and power in the locomotives. Engines that were formerly 12 tuns in weight, and working at a steam pressure of 45 lbs. on the square inch, now weigh 40 tuns, and work at 120 lbs. pressure; and the rate of speed, formerly 25 miles per hour, is now 60 miles; while railways that formerly run 60 trains per day, now run 300, with a proportionate increase in the weight of goods and passenger trains. Notwithstanding this enormous increase in speed, power, weight, and number of trains, no corresponding improvement in railways, to render them capable of sustaining the necessary wear and tear, has yet been effected; and seeing the mischievous effects of this desideratum in our railway economy, Mr. Thomas Wright, C. E., has designed a bedplate, sleeper, and iron roadway, expressly adapted for sustaining the highest speeds and heaviest traffic, with the greatest durability and lowest cost for maintenance, combining the advantages of the longitudinal and transverse systems, and upon which 100 miles per hour may be performed with perfect ease and safety."

Page's Portable Circular Saw Patent.

By special application to the Acting Commissioner of Patents we learn that George Page's patent for Portable Circular Saw Mills was extended on the 14th of July last, for a period of seven years from July 16, 1855.

There seems to have been something a little curious about the grant of this extension, and if any of our hundred thousand readers can throw light upon the matter, we trust they will do so.

Page's invention occupies almost as important a position in the preparation of lumber as Woodworth's machine does in the planing of the same. The patent is in very extensive use all over the country.

For some time past it has been the practice of the Commissioner of Patents to publish the official notices of all extensions in the SCIENTIFIC AMERICAN. Our readers will at once perceive the propriety of this procedure, for it is well known that no publication in the country comes in such immediate contact with those persons who are likely to be interested, one way or the other, in patent extensions, as this journal. Indeed, if all other papers were omitted, and the notices of extension published only in the SCIENTIFIC AMERICAN, we believe that the purposes of the law, viz.: to notify parties interested adversely to the grant of an extention, would be fully answered. If proper public notice be not given of applications for extensions, no objections to the grant will be presented. And where no reasons appear to the contrary, of course the Commissioner can justify himself in granting the prayer of the applicant.

Now we would respectfully inquire *how it happened* that the usual custom of the Patent Office was set aside in the present instance, and why it was that no notice of Page's application for extension was sent to the SCIENTIFIC AMERICAN? Can any of the clerks at the Patent Office inform us? Do any of them remember whether there was a sort of one-sided request made that the notice should *not appear* in this journal. There is another inquiry that we should like to make:—"Has the patentee, or his assignees, failed to obtain a reasonable remuneration for the time, ingenuity, and expense bestowed upon his invention, and the introduction thereof into use?"

If we are to judge from reports coming from all parts of the country, the owners or assigeens of this monopoly have enjoyed a princely revenue from the patent for many years; therefore no extension should have been granted. But perhaps they became suddenly poor when they applied for the extension. Can any body tell us all about the matter? The public are as anxious to know as ourselves. "Any information will be thankfully received."

The Mason Testimonial.

We were informed a few days since, by a gentleman from Philadelphia, who has a very extensive acquaintance among inventors and manufacturers, that the proposition to present a testimonial to Judge Mason gives much satisfaction in that locality, and will doubtless meet with a proper response. Similar reports have reached us from other sections. This is as it should be.

A Washington correspondent says there is a rumored probability of Judge Mason's return to office this fall, and thinks there ought not to be any hasty action in the matter, for if he should conclude to come back, he might feel embarrassed by such a compliment. We think we detect a little of envy in the above suggestion—a sort of indirect fear lest the ex-Commissioner should too soon be thought too well of. As to the rumor of his return, we have once before stated that it was without foundation—our information having been derived from Mr. Mason himself—and we again repeat the denial.

But whether he returns or whether he does not return, can certainly make no difference as to the propriety of presenting him with this testimonial. The compliment is for services already rendered—not for the future. Besides, those who are at all acquainted with Judge Mason's character, well know that he is not the man to be "embarrassed" from such a cause. Whoever entertains this impression is too sentimental, by half. Judge M. would undoubtedly receive the gift—if he accepted it at all—in the spirit in which it is to be presented, viz.: as a token of the high satisfaction entertained by his countrymen for the manner in which his official duties have been discharged.

The voluntary offering of such a testimonial, whether he was in or out of office, or contemplated a return, would probably be very gratifying to him as a man; for it would be to him an evidence that the effects of his labors had been sensibly felt, and undoubtingly approved. So far as his future action is concerned, such a demonstration, if it had any influence with him at all, would cause him to continue the same bold, independent, and vigorous policy which has always marked his official career. That he would be "embarrassed" is simply absurd.

Let the friends of Judge Mason, then, come forward and give him a hearty testimonial of their esteem and appreciation.

Fair of the American Institute.

The managers of this Institute deserve great credit for the spirit they have exhibited this year by hiring the Crystal Palace, with its immense accommodations, for the display of articles and machinery. They seem to be determined to make a grand flourish. It is our opinion that it will be the best fair ever held under the auspices of the American Institute, as the Crystal Palace far surpasses Castle Garden for accommodations, especially for displaying machinery. Exhibitors of machines will be afforded ample space and power to show them off to the best advantage.

The Price of Gas.

The Liverpool *Events*—one of the new English penny papers—says:—"The cost of gas is excessive, and we state emphatically, as large consumers, that our bills show no decrease whatever since the reduction from 4s. 6d. to 4s. the 1000 feet, has taken place.

We wonder how the proprietors of the *Events* would feel to pay three times more for their gas ($3 per 1000 cubic feet,) as we have to do in New York.

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The American and French Patent Systems Contrasted.

One of the co-editors and proprietors of the SCIENTIFIC AMERICAN, Mr. S. H. Wales, is now, and for some time past has been in Europe, as Commissioner to the French Exhibition. At the request of an eminent engineer in Paris, he has written a few articles for *l'Invention*, a scientific journal published in Paris, in which he discusses and contrasts the American and French patent systems with considerable effect. The French inventors are laboring for a reform in their patent laws, which are too indiscriminate to fully meet the ends for which they are intended. Mr. Wales has been much complimented for the helping hand he has lent. We annex a translation of one of his articles, which touches on several points of interest and importance to American inventors:—

THE PRELIMINARY EXAMINATION.—In the June number of the *Invention*, I discussed in a summary manner the patent system of the United States, and endeavored to throw light on the utility of preliminary examination previous to the issue of letters patent. I intimated my preference for this system over any other now practiced, because the ultimate advantages to the patentee are, in my opinion, more likely to be secured and his rights protected by it. I also intimated that the system was not free from well grounded objection. The experience of twenty years, under the amended law of 1836, has revealed some objections to it which are gravely important and should not be passed over; but before mentioning some of them, it will be pertinent to the subject to state as a strong argument in support of a preliminary examination of all inventions for which patents are solicited, that this species of property has hitherto borne a commercial value in the United States equal in importance to other species of property; I could enumerate a great number of cases where patentees have suddenly risen from obscure poverty to an easy independence. I now refer to useful improvements. In the United States, as in all other countries, patents almost without number have been secured for useless vagaries in mechanics, and if their respective patentees have not been remunerated for them, the fault is not due to a defective system in the granting of the patent, but in the invention itself. If an inventor toils day after day in search of a perpetual motion or for some method of descending the Norwegian maelstrom, and afterwards finds no reward for this patient industry, it is no argument against a system that requires novelty as its first requisite to the issue of a patent for the invention; although under the rules of the Washington office, examiners are expected to withhold the patent, unless tolerable evidences of utility are suggested in the invention. In France, if I rightly apprehend the true state of the case, an inventor seldom finds a *bona fide* purchaser for his improvement, he is compelled usually to license out his patent to such parties as he may be able to find, who will undertake the sale of the article or machine, and in all such cases he is liable to the chances of an uncertain market and to the risk of broken integrity on the part of the licensee. He must also be able to establish the manufacture of the patented article by his own means so as to protect the licensee from the possibility of losing by an initiatory investment of money to carry it into practice.

An inventor is usually possessed of limited means and finds it out of his power to establish such manufacture, and is discouraged by the bleak prospect before him, from spending his time on improvements that overreach his financial ability to manage. In the United States it is a common thing for the patentee to sell his entire or partial right for a handsome sum of money, and is then free to carry forward any other improvements that he may discover. The system of a rigid preliminary examination of an invention inspires confidence in the legal value of the patent, and hence capitalists are more willing to embark their means in its purchase. Whoever will take the care to examine the weekly list of patents as they are officially published in the columns of the SCIENTIFIC AMERICAN, will be surprised to notice the activity that prevails among inventors in the United States. The foundation of this activity rests upon a good prospect of commercial success, otherwise it would not, it could not exist, and I argue from this point that the United States system of granting patents, even with its defects, is the most perfect yet devised. The French are unquestionably an ingenious people, but their genius is passive, and not active, simply because they have little encouragement to ask for the patent seal of the Government with no reasonable safe-guard from litigation. Even with the letters patent in hand, they feel like one making his way in a dark and strange avenue, not knowing how soon he may stumble upon some foul breaker. Every species of manufacturing industry in France needs skillful improvement. The necessities of the times are demanding change. The agriculture of France is also suffering for improved implements to relieve the husbandman of his oppressive labors, and to enable him to make greater returns for his oftentimes misapplied industry. This result will not be gained until the Government seeks to foster more carefully the rights and guarantees made to inventors.

Under the present advanced condition of mechanical science, as it is developed in the three greatest producing countries of the world, France, England, and the United States, I readily conceive that an unlimited system of preliminary examinations could not be carried into effect. It would be sufficient for the French Government to confine itself to its own inventors without attempting to search the dusty records of foreign countries to see what has been before done in the same field. This latter would be an impossible, nay a fruitless labor; but with a faithful board of examiners aided by the noble works upon science that have been so honorable to the nation, a complete and beautiful system could be established that would start into life the slumbering genius of French inventors, and I am sure that the result within the next ten years would more than realize the hopes I have expressed in favor of the improved system.

One of the original defects in the system at present in vogue in the United States is the laborious necessity imposed upon examiners to search the published records of foreign countries. This is attended with great trouble, and is, after all, uncertain in its results, because it is out of reason to suppose that every publication of a scientific character will make its way into the library of the Patent Office.

Efforts are now being made to confine the range of examination within the United States, and at the same time freely open to foreign inventors the privilege of taking patents under the same regulations as shall be prescribed for citizens. The argument is:—The original inventor that offers a good invention for protection should be entitled to receive letters patent for it, if the invention has never before been known or practiced in the United States. With the necessary details for carrying it into effect the system would be admirable, and while the interests of inventors would be thereby greatly promoted, a corresponding result would accrue to the public interest. The interests of each are inseparable, and no legislation should suffer the claims of inventors to override the claims of the public.

I have thus briefly set forth the benefits, as I conceive them, of preliminary examination before the issue of letters patent for an invention, and in parting with the subject, I dare express the hope that the enlightened Government of France, having inaugurated a splendid exhibition of ingenuity, will not permit the occasion to pass without a more extended appreciation of the genius of its inventors by the establishment of a patent code that shall at once invite them to greater activity.

I feel confident that if France would take the initiative in this matter, other continental European countries would speedily follow.

Notes Relating to Science and Art.

A CLOCK FAN—The Albany *Knickerbocker* calls for the invention of a fan moved by clockwork, and made portable, so as to be set upon a table, and about the size of a Yankee clock, and concludes as follows:

"Whoever takes out a patent for a successful invention of the sort may realize hundreds of thousands of dollars from it during the next summer. For throwing out the hint, the inventor can send us a sample. The sooner the better."

We think our cotemporary is somewhat mistaken. This same invention was patented by Commodore Barron some twenty years ago, and has been re-invented, by different persons, several times a year ever since; but we never knew of any one who found it profitable. It has been presented to us as many as six times since May last, for our opinion as to its novelty,—each time by a different inventor.

NEWLY INVENTED PUMP—A pump without a piston, greatly simplifying the construction, is much talked of among French mechanicians. It is the invention of Monsieur de Malbeck.—The tube instead of being fixed, after the old plan, is made to work up and down, the lower end plunging into the water. At each plunge the water rises higher in the tube, the return of air from above being prevented by a valve, till at last a copious and steady stream is discharged by the spout. The pump is but little subject to derangement, is not liable to be frozen up, costs but little to keep in repair, and if made of galvanized iron, corrosive liquids or acids would not affect it. It is, moreover, of universal application.—[Charleston Mercury.

[This pump is the same exactly as that illustrated in 1849, Vol. 4, SCIENTIFIC AMERICAN, the invention of Nehemiah Dodge, of this city.

VOLTAIC ELECTRICITY—Dr. Tyndall has just concluded a course of lectures at the Royal Institution, on voltaic electricity. In reviewing the progress and present condition of the science, he brought before his audience the recent discoveries, and stated the opinions of the most distinguished electricians, pointing out at the same time an immeasurable field that still lies open for investigation. He did little more than briefly notice the applications of electric force to the purposes of moving machinery, of illumination, of working in metals, and of transmitting intelligence. So far, indeed, as the probable substitution of electricity as a moving power instead of steam, it was shown that the only obstacle is the cost of the means yet known of exciting the electric force, and when it is considered that the chemical actions during the combustion of a candle are sufficient to generate more of this force than the most powerful voltaic batteries, if those actions could only be developed in the form of a voltaic current, there seems good reason to suppose that the means of thus generating electricity will ere long be discovered, and that there will then be supplied an almost illimitable source of power, applicable in numerous other ways than in mechanical action. It is, perhaps, in this direction that we must look for the accomplishment of marvels during the remainder of the nineteenth century, equal to those that have been effected since its commencement.—[London Mining Journal.

Ericsson and Hot Air.

In our list of patent claims last week, it will be perceived that another patent has been granted to Capt. Ericsson for improvements on hot air engines. This corroborates the reports which have been in circulation for some time in this city, regarding new modifications of the very air engines which had been pronounced perfectly successful, "the greatest triumphs of modern genius," &c. The two claims of the new patent do not embrace any new discovery in science relative to hot air, nor do they relate to the heating furnaces (which were failures in the old engine,) nor to any new method of obviating the difficulties of leakage, but simply to new modifications and arrangements of parts; these embrace the working of two pistons in one cylinder, and a method of working the pistons of the working cylinders by two sets of vibratory arms. We really regret to see an inventor like Capt. Ericsson throwing away his talents, science, skill, time, and toil upon such a chimera as the hot air engine.—Independent of the greater complexity of its parts, in comparison with the steam engine, the motive element—hot air—as a substitute for steam, never can be so used with success. The great bulk of fresh air which has to be fed in to an air engine at every stroke, is an objection to its use which cannot be overcome by any arrangement of machinery, and is sufficient of itself to *taboo* it. To say, as some have done, and as was reported of Capt. Ericsson's late engine, that *compressed* air would remove every difficulty, is neither more nor less than to make a statement destitute of truth. It requires the working cylinder to be filled with fresh air at every stroke, and this has to be heated up to 491 degrees to exert a pressure of 15 lbs. on the square inch; to use less air will require a higher degree of heat, and to lower the temperature will reduce the pressure. In its very nature steam has many advantages over hot air, and as we believe there is great room for improvement in the saving of fuel in boilers, &c. we believe that Capt. Ericsson would do more good to himself and the world if he would quit hot air at once, and devote himself to the steam engine.

Steamboats on the South and Western Waters. The New Steamboat Law.

A very interesting report has been published in the Cincinnati *Gazette*, relating to steamboat statistics for the first six months of this year, by W. W. Guthrie, local inspector at Cincinnati. The report relates to steamboats on the Southern and Western rivers only. The number running on them is estimated at 600. During six months named, twelve were destroyed by fire, seven damaged by ice, fifty-two sunk and damaged by snags, five damaged by explosion, and seven damaged by collisions.

The number damaged by snags is very large, and amounts to 50 per cent of the entire loss. Our people in the South and West should look to improving the navigation of their rivers, for the loss amounts to nearly two millions' worth of property annually. The following, from the Report, is high testimony in favor of the workings of the new steamboat law:

"It is worthy of remark that there has been no explosion or collapse of flue of any boiler manufactured since the passage of the law by Congress, of August 30th, 1852, and coming under the reduction of steam pressure. In every instance, the disasters have been from boilers made previous to the passage of that law; many of them have been brought under its provisions which allows a greater steam pressure, and is actually necessary to that class of boats constructed under a different view of proportion between boilers and cylinders. It is true, a limit is fixed, but it is far above that of the new boiler."

It is also stated that collisions are becoming less frequent on account of substituting the steam whistle for the bell in signalizing.

Wire Brick and Brickwork.

MESSRS. EDITORS:—To strengthen bricks so that they will stand a stronger crushing force, let several webs of wire of near their own size, be inserted at equal distances in the material, when they are molded, and then let them be baked as usual. When the bricks are laid up, let long webs of coarser wire, of near the width of the wall, be placed between each layer or between every two or three, &c., or so as to correspond with the pressure they have to sustain. As bricks are made narrow, perhaps the insertion of the webs between their layers in a wall would be sufficient; and thus dispense with their use in the bricks, which would be tedious to mold. In this way, by conforming wire webs to the articles to be manufactured, they can be greatly strengthened. They can be introduced into various articles of papier mache and pasteboard work, into glass ware, plaster work, into pottery and porcelain, and, in short, into a great many articles, to strengthen them, which are made of cast, molten, or plastic materials. Yours, respectfully,

H. STRAIT.

Covington, Ky., July, 1855.

Steam Plow.

The last attempt to harness steam to the plow, took place at the exhibition of the Royal Agricultural Society at Carlisle, Eng., July 25. A steam cultivator was entered by Mr. Usher, but unhappily failed, by a short span, to reach the ground. While traveling on the road it mired in a soft spot and was not easily extricated. It is described as being complicated and clumsy of locomotion. A few experiments were made with it in plowing, but it seems to have been regarded as an invention more ingenious than useful. Notwithstanding this failure, we are strong in the faith that steam will yet be successfully introduced on the plowing field. Steam engines are coming into very common use in England, among the farmers. They use them for driving thrashing machinery, cutting fodder, raising water and a variety of other purposes.

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TO CORRESPONDENTS.

A. H., of Ill.—Prof. Page has long since anticipated you in the construction of a tubular carrying telegraph. His electro-magnetic engine consists of a tube composed of wires, through which a piston is caused to travel with lightning velocity by the application of the galvanic battery. The tube may be made of indefinite length, so that a tubular telegraph for conveying small packages with tremendous speed, might be constructed. The principal difficulty would be the enormous amount of battery power required, and the consequent expense of operating such a telegraph. The grand trouble with all electro-magnetic machines is the cost of working. What is wanted to give them success is a galvanic battery which will eat up less money than the steam engine. Whoever invents this will have made the last great discovery of the age. Your idea of causing a ball to roll on a magnetic bar, placed inside of a non-conducting tube, with a battery inside of the ball, is impracticable; at least we do not conceive of any successful method by which you could make the ball travel, except on Page's plan. It must have required a grea deal of courage to attack the inventor you name. You will probably be welcome to all the laurels you win.—Look out that you do not find yourself going up "Salt River" in the next boat after him. It is sad to see brothers disagree.

O. S. F., of N. Y.—Wheeled chairs for invalids are quite common; there may be something patentable in your mode of attaching the small steering wheel, provided it effects a new and useful result, either in guiding the chair or cheapening the price.

S. C., of Va.—There is nothing patentable in the use of a piston valve as a safety valve, and we doubt much whether such a device would operate as well as the puppet now used.

C. M., of Mo.—We think F. H. Smith, of Baltimore, Md., can supply you with such a brick machine as you desire. We would state here for the benefit of the makers of all good brick machines, that we have frequent inquiries for such articles, and if some of them would insert a brief advertisement in our columns, we presume it would accommodate many, as well as prove advantageous to themselves.

H. B. N., of Pa.—We cannot determine as to the claim on your gate unless you send a model.

G. S., of Pa.—The use of glass as an anti-friction material in journal boxes and bearings, is quite old and not patentable.

D. C. H., of O.—Patents for improvements (not additional) on machines already patented run 14 years. They are independent of the original grant, so far as duration is concerned. No patents are issued in Canada except to British subjects.

J. M. C., of N. C.—The idea of operating switches by means of a cam or arm projecting from the engine and controlled by the engineer, is not new. There are many devices for the purpose, and among them the essential features of your plan. There is nothing patentable in your arrangement.

H. T., of N. Y.—There s nothing patentable in your propeller. Perhaps a patent could be had on your cotbed.

A. B. C., of ——.—It is a very common practice to send telegraphic messages and letters in cypher. There is nothing of patentable novelty in your idea, neither would there be in the detail.

E. S. L., of Va.—Your plan of making ice by elevating tanks of water into the aerial regions of perpetual snow and ice, by means of balloons, is certainly new and patentable. We doubt its economy, however; we think it is far cheaper to cut the ice out of mill ponds Your plan of making cannons possesses no advantages, and is not patentable. $2 received.

J. T. & Co.—Your model has arrived. Your improvement in shingle machines strikes us as containing patentable features. It looks as if it was a valuable invention We will make your claims as broad as they will bear, and will do our best for you throughout. Send on the fee of $30. $1 received. You did not give your address or we should have written by mail.

G. L. W., of Md.—Your letters on Spiritualism will receive attention before long.

R. M. S., of N. J.—Get a vertical cylindrical boiler for such a small engine; it requires only to evaporate half a cubic foot of water per hour and contain three cubic feet. It should be of thin iron plate.

H. A. H.—We do not know of any book devoted to Christian names. Copyright costs $1.

E. S., of Ga.—Your device for feeding water into steam boilers was patented twenty-five years ago, and has been again invented by at least a score of men within four or five years past. We cannot tell why it has never come into general use, as several who have tried it say, as you do, that it works well.

D. A. W., of Vt.—We are not acquainted with a work that treats extensively on flouring mills.

R. M. C., of Pa.—If A buys a patent right for a certain county, B is liable if he uses or sells in any manner in that county, no matter where he got his machine. A is the exclusive owner to the county be purchased.

W. J., of Mass.—One patent would not cover both inventions. There appears to us to be more originality in the last model than in the other. We do not see what could prevent it operating.

A. W., of N. Y.—If inventors will neglect to secure their improvements where they have the opportunity, they must put up with the consequences. We think you are mistaken as to the horse power.

S. N. C., of Ill.—$15 will cover the cost of illustrating your invention.

G. H. B., of Ga.—Ames' Polygraph, we believe, can be made to reduce or enlarge the copy, but it would increase the expense. We will send your letter to the agent.

D. G. T., of Ky.—We cannot see how it is possible for your condenser to act as you think it will without an air pump. Admitting that when a vacuum shall have been produced water, will enter at the bottom and rise in the center tube, and discharge itself in jets into the outer tube, when steam is admitted by the opening of the eduction valve, it will drive the water rapidly down the tube, but we think will condense very little steam, as it will not remain long enough.

R. B., of N. Y.—Your governor is not new; the same thing has been proposed many years ago. We do not know of its ever having been in use. We do not exactly understand your blower, but state for your information that there are rotary blowers in use which collect the air at the periphery and discharge at the center.

C. R. G., of Iowa—Giving a spiral or other form to bullets, for the purpose of making them revolve as they pass through the air, is old and not patentable.

Money received at the SCIENTIFIC AMERICAN Office on account of Patent Office business for the week ending Saturday, Aug. 11, 1855:—

R. G. & Sons, of Mass., $30; H. N., of Me., $35; J. W. B., of Ark., $40; E. G., of N. J., $30; H. R., of N. Y., $60; I. C. C., of Mich., $30; J. C. S., of Mass., $10; H. H. L., of Ill., $25; J. A. B., of Ill., $12; J. A., of Pa., $25; W. V. G., of Ct., $70; H. B., & O. S. W., of Ind., $25; J. H. J., of Iowa, $25; H. N. S., of Ct., $30; E. D. C., of Ct., $10; S. & W. H. B., of O., $30; E. V. P., of N. Y., $225; D. N. R., of N. Y., $277; W. P., of Miss., $30; G. H. T., of N. Y., $55; W. S., of N. Y., $150; J. H., Jr., of Wis., $155; H. M. C., of Ct., $10; B. & C., of Mich., $30; J. A. S., of Pa., $30; W. M., of N. Y., $20; B. & H., of N. Y., $30; C. T. C., of N. Y., $20; W. & B. D., of Ct., $25; D. B., of Vt., $12; S. B., of N. Y., $35; C. W. S., of Mass., $25; S. A. K., of Pa., $20; C. J. C., of Pa., $50; J. W. H., of R. I., $150; J. C. H., of N. J., $30; A. K., of Ct., $25; C. D. W., of Wis., $40; R. D. N., of N. H., $30; J. H., of Pa., $30; P. H., of N. Y., $55; S. T. P., of N. J., $55.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Aug. 11:—

E. D. C., of Ct.; J. A. B., of Ill.; O. S. W., of Ind.; H. H. L., of Ill.; J. A., of Pa.; E. R. B., of Ct.; W. V. G., of Ct.; S. & W. H. B., of O.; F. K., of France; A P., of France; G. H. T., of Mass; A. K., of Ct.; J. H. J., of Iowa; J. W. B., of Ark.; W. & B. D., of Ct.; S. B., of N. Y.; C. W. S., of Mass.; P. H., of N. Y.; J. L. T., of N. Y.

Important Items.

BACK NUMBERS AND VOLUMES—We have the following numbers and volumes of the SCIENTIFIC AMERICAN, which we can supply at the annexed prices:—Of Volume 5, 40 numbers, bound, $1,75. Of Volume 6, all,—price in sheets, $2; bound, $2,75. Of Volume 8, none complete, but about 30 numbers in sheets, which will be sold at 50 cents per set. Of Volume 9, bound, $2,75. Of Volume 10, all except Nos. 17, 25, 25, 27, and 28, at the subscription price.

PATENT CLAIMS—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patentee, and enclosing $1 for fees for copying.

RECEIPTS—When money is paid at the office for subscription, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a bona fide acknowledgment of the receipt of their funds.

MODELS—We are receiving almost daily, models of inventions which have not the names of their inventors marked upon them. This usually prevents us from taking any notice of them whatever. We shall esteem it a great favor if inventors will always attach their names to such models as they send us. It will save us much trouble, and sometimes prevent the model from being mislaid.

PATENT LAWS AND GUIDE TO INVENTORS.—Congress having adjourned without enacting any new laws pertaining to applications for patents, we have issued a new edition of the old laws, which may be had at our counter or sent by mail. This pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office. Price 12 1-2 cents per copy.

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IMPORTANT TO INVENTORS.

THE UNDERSIGNED having had TEN years' practical experience in soliciting PATENTS in this and foreign countries, beg to give notice that they continue to offer their services to all who may desire to secure Patents at home or abroad.

Over *three thousand* Letters Patent have been issued, whose papers were prepared at this Office, and on an average *fifteen*, or *one-third* of all the Patents issued each week, are on cases which are prepared at our Agency.

An able corps of Engineers, Examiners, Draughtsmen, and Specification writers are in constant employment, which renders us able to prepare applications on the shortest notice, while the experience of a long practice, and facilities which few others possess, we are able to give the most correct counsels to inventors in regard to the patentability of inventions placed before us for examination.

Private consultations respecting the patentability of inventions are held free of charge, with inventors, at our office, from 9 A. M., until 4 P. M. Parties residing at a distance are informed that it is generally unnecessary for them to incur the expense of attending in person, as all the steps necessary to secure a patent can be arranged by letter. A rough sketch and description of the improvement should be first forwarded, which we will examine and give an opinion as to patentability, without charge. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country.

Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps towards making an application.

In addition to the advantages which the long experience and great success of our firm in obtaining patents present to inventors, they are informed that all inventions patented through our establishment, are noticed, *at the proper time*, in the SCIENTIFIC AMERICAN. This paper is read by not less than 100,000 persons every week, and enjoys a very wide spread and substantial influence.

Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that a very large proportion of all the patents applied for in the U. S., go through our agency.

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BAG LOOMS—Any person wishing to purchase patent rights for bag looms, that make 240 picks per minute; or wishing for looms for weaving seamless bags (out of the State of Maine), will please apply to GEO. COPELAND, North Gray, Me. 1*

BULKLEY'S PATENT DRY KILNS, by Superheated Steam, will dry grain, flour, and meal without scorching, at a cost of 2 cents per bbl. Also green inch lumber in 12 to 20 hours. Circulars sent free on application. H. G. BULKLEY.
Kalamazoo, Mich. 49 3*

TWENTY-SEVENTH ANNUAL FAIR OF THE AMERICAN INSTITUTE of the City of New York. The Managers announce that they have made arrangements to hold this exhibition in the Crystal Palace, commencing on Wednesday, the 3d of October next. This magnificent and spacious building will be opened for the reception of articles, from Thursday, the 27th of September, until Tuesday, the 2d of October. Heavy machinery and other articles from a distance can be stored in the Palace from the 15th of September. Offices will be opened on Fortieth street for the entry and reception of articles. Premiums, consisting of Gold and Silver Medals, Cups and Diplomas, will be awarded on the recommendation of competent judges. The Managers would impress upon Exhibitors the necessity of giving immediate notice of the space required for the proper display of the articles they intend to exhibit. Circulars, containing full particulars, can be had on application at the Office of the Institute, No. 351 Broadway. Communications addressed Wm. B. Leonard, Corresponding Secretary, will meet with immediate attention. By order of the Managers.

EDWIN SMITH, Chairman.
JOHN W. CHAMBERS, Secretary. 1

EXHIBITION OF THE MARYLAND INSTITUTE, Baltimore.—The Eight Annual Exhibition by the "Maryland Institute, for the promotion of the Mechanic Arts," will be opened on Tuesday, 2d of October next. Goods will be received for exhibition and competition at any time prior to September 27th, and for exhibition merely, as late as 1st of October. The co-operation of the manufacturers, mechanics, artists, and the community generally is respectfully invoked in the immediate preparation of articles for display. All articles deposited must be of American manufacture; the only exception to this rule being in favor of rare specimens in the department of the Fine Arts, owned by parties not holding them as merchandise on sale. Circulars, embodying the regulations and arrangements, and blank applications for space, with all other information may be had at any time of the Actuary of the Institute, at the Hall.

JOSHUA VANSANT,
49 4t Chairman of Exhibition Committee.

PREMIUM SELF-ACTING Drilling Machine—the most perfect yet produced. The American Institute of New York, and the Massachusetts Charitable Mechanics' Association, each awarded to it a silver medal and diploma. For sale at the Atlas Foundry, corner of Greene and Wayne streets, Jersey City. Price, $250.
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IMPORTANT TO QUARRYMEN, Stone Cutters, Contractors, and Builders—Porter's Patent Spring Hammer Stone Dressing Machine. The Porter Stone Dressing Machine Co., having purchased the patent for the above invention, are now prepared to sell rights to use the same, and to furnish Machines, and erect them at any place within the United States. This machine may be seen in practical operation at the works of the Company, in the city of New York, on 11th street, between 9th and 10th avenues, where parties interested in the business of working stone, and the public generally, are invited to call and satisfy themselves as to its utility. The Machine is very simple in its construction, and not liable to get out of order. It works with about equal advantage on every kind of stone, and will perform the labor of from twenty-five or fifty men at a total expense of from $8 to $12 per day. It produces a finely finished surface, leaves a perfect arris, and cuts moldings with rapidity and beauty. Its operation is precisely that of the mallet and chisel in the hands of the workman. It combines great power with the nicest delicacy, and has received the uniform and decided approval of practical men. In addition to its regular work, it will be tried on any stone, and subjected to any test, that parties examining it may desire. To those who are unable to visit the Machine personally, a circular with engravings and a full description will be sent on application. Office of the Porter Stone-Dressing Machine Co., 37 Wall st., New York. A. B. CAPWELL, Prest.
47 3eow

TO FARMERS AND ALL OTHERS INTERested in Agriculture.—Will be published in October, 1855, "The Year Book of Agriculture, or the Annual of Agricultural Progress and Discovery for 1855,"—exhibiting the most important discoveries and improvements in Agricultural Mechanics, Agricultural and Horticultural Botany, Agricultural and Economic Geology, Agricultural Zoology, Meteorology, &c.; together with statistics of American growth and productions; a list of recent Agricultural Publications, Agricultural Patents—with notes by the Editor on the Progress of American and Foreign Agriculture for the year 1855. By DAVID A. WELLS, A. M. The Year Book of Agriculture will be published in 1 Vol. 12mo., of 400 pages, and will contain an elegant steel portrait of a distinguished agriculturist, together with illustrations of mechanical improvements, stock, fruits, &c. Although the publication of this work will be attended with very heavy expenses, it will be published at the low price of $1,25, thereby enabling every farmer to possess a copy. On receipt of the published price it will be sent free per mail to any part of the United States. As the sale will be very large, all orders should be sent in immediately. A liberal deduction to Clubs. Address

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SAWS—PATENT TEMPERED AND Machine-Ground Saws. Circular Saws manufactured on these improved principles can be used thinner and with less set, and can be run faster than any hitherto made. All sizes warranted perfectly even in thickness and temper, and made of the very best material. HENSHAW & CLEMSOM, 21 Exchange st., Boston. 49 7*

SAFETY RAILROAD DRAWBRIDGES AND Self-Locking Switches, (Patented.)—This invention will secure to the traveling community perfect safety while journeying on railroads. The apparatus is so arranged that simultaneously with the opening of a draw, switches (on each side of the river) are unlocked and moved to connect with inclined sidelings; and at the same time signals, attached to the switch bars are made to indicate that the draw is open. The self-locking switches can be used separately at any of the turn-outs of a railroad, and thereby prevent the constantly recurring accidents occasioned by neglect of bolting switch levers, as these switches bolt and unbolt themselves when moved by the draw of a bridge or the lever at a turn-out. For the purchase of rights under the patent or inspection of a model, apply to J. K. GAMBLE & BROTHER, No. 5 Margaretta st., near Front, Philadelphia. 49 4*

MATHEMATICAL INSTRUMENTS—The undersigned furnishes, free of charge on application, to all part of the United States, his new Illustrated Catalogue of Mathematical, Optical, and Philosophical Instruments. C. T. AMSLER,
3leow3m* 211 Chestnut st., Philadelphia, Pa.

VENTILATION—The undersigned has devised and patented the only system by which a spontaneous ventilation can be effectually carried out in buildings, vessels, railroad cars, &c., and will sell to parties desirous of purchasing of the same at a reasonable price. Address H. RUTTAN, Coburg Canada. 49 13 *

WROUGHT IRON PIPE—Boiler Flues, Globe Valves, Cocks, Steam Gauges, Gauge Cocks, Oil Cups, and every variety of fittings and fixtures for steam, water, and gas, manufactured and sold by JAMES O. MORSE & CO., No. 79 John st., N. Y. 49 12*

TO MACHINISTS AND ENGINEERS—METALLIC OIL, patented by Cumberland Brothers April, 1849. This Oil is manufactured and sold by the undersigned, the genuine article, $1,05 per gallon. Also Yockney's Improved Lubricating Oil, possessing all essential properties for oiling, both light and heavy machinery, to the same degree as sperm oil, in packages containing from 5 to 300 gallons, to be had only of the manufacturer. This oil is uniform in quality, is free from unpleasant odor, is not inflammable, although excellent for burning in lamps, and it will not, under any circumstances, corrode or gum on machinery. AUGUSTUS YOCKNEY.
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THE WOODRUFF & BEACH IRON WORKS, of Hartford, Conn., L. B. HANKS Agent. No. 312 Broadway, New York. Will furnish to order high and low pressure, Marine and Stationary Steam Engines and Boilers. Also all kinds of machinery for Powder, Paper, Sugar, and Flouring Mills, and every description of Iron, Brass, and Composition Castings, Lathes, Shafting, &c., of the best quality of materials and workmanship on liberal terms. 47 4*

NORCROSS ROTARY PLANING MACHINE.—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb, 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks is not an infringement of the Woodworth Patent.

Rights to use the N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York.

Office for sale of rights at 208 Broadway, New York. Boston, 27 State street, and Lowell, Mass, 42 6m*

THE EUROPEAN MINING JOURNAL, RAILway and Commercial Gazette. A weekly newspaper, forming a complete history of the Commercial and Scientific Progress of Mines and Railways, and a carefully collated Synopsis, with numerous Illustrations, of all New Inventions and Improvements in Mechanics and Civil Engineering. Office 26 Fleet street, London. Price $6,50 per annum. 36tf

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1855—WOODWORTH'S PATENT Planing, Tonguing and Grooving Machines—The subscriber is constantly manufacturing, and has now for sale the largest and best assortment of these unrivalled machines to be found in the United States. Prices from $85 to $1450. Rights for sale in all the unoccupied Towns in New York and Northern Pennsylvania. JOHN GIBSON, Planing Mills, Albany, N. Y. 43 10*

JACK SCREWS AND HYDRAULIC JACKS.—For sale at manufacturers' prices, by FOSTER & LEACH, 26 Broadway, N. Y. 37 13*

AMERICAN PLATE GLASS COMPANY—(Factory Williamsburgh, L. I.) are now prepared to execute orders for rough Plate Glass, suitable for floors, skylights, vault, and deck lights. Prompt attention will be given to orders left at their office, 442 Broadway, or their agent, J. R. PLATT, 79 Murray st. 42 8*

CAPITALISTS WANTED TO TAKE PATents Abroad—Mr. L. G. Evans of Spring Hill, Ala., has just taken a valuable patent in this country for an improvement in plows, and desires to find some person who will, for an equal share of the invention in England or any other foreign country, pay the fees necessary to take the Patent. The cost would be about $330 for England, $150 for France, etc. For particulars address L. G. EVANS, Spring Hill Post Office, Ala. 47 3*

TO MANUFACTURERS—THE AMERICAN Water Wheel Co., Wareham, Mass., are now manufacturing to order, Warren's Turbine Water Wheels, from new and improved patterns, got up expressly for manufacturers. These turbines are made in the most perfect manner, and on the most scientific principles. Cotton and woolen manufacturers will do well to examine them before purchasing elsewhere. We also manufacture a cheap turbine on nearly the same plans, but with less finish and less cost. They are well adapted to grist mills and small manufacturing establishments.
J. WARREN, Agent.
47 4 A. WARREN, Treas.

GRAIN MILLS—EDWARD HARRISON, of New Haven, Conn., has on hand for sale, and is constantly manufacturing to order, a great variety of his approved Flour and Grain Mills, including Bolting Machinery, Elevators, complete with Mills ready for use. Orders addressed as above to the patentee, who is the exclusive manufacturer, will be supplied with the latest improvements. Cut sent to applications, and all mills warranted to give satisfaction. 43 tf

SUPERIOR MACHINISTS' TOOLS—CARPENTER & PLASS, foot of 30th st, East river, N. York, are now building, and have constantly on hand, Lathes, Drillers, Planing Machines, Slotting Machines, Bolt Cutters, Gear Cutters, Surfacing Machines, or will make to order any other tools of any capacity required. The above Tools combine all the latest improvements, and the best workmanship. 48 2*

VERGNES' ELECTRO-CHEMICAL BATHS,—200 6th Avenue. Professor Vergnes discovered, some three years ago, a method for extracting metallic substances from the human system, such as mercury, lead, silver, arsenic, etc., by means of electro-chemical baths; and also to cure all diseases generated by them, viz.:—Dyspepsia, Rheumatism, inflammatory or chronic; Paralysis, Painter's Colic, etc. This theory has created much sensation both in this country and Europe, and has, in all cases accomplished what it claims. Not being able to attend to the numerous calls he has daily from the afflicted, Prof. Vergnes has made an arrangement with Dr. Hinkinson, who will hereafter be in attendance, for the purpose of assisting in giving the baths, and also for giving medical advice. N. B. The theory will be fully explained and certificates given to all competent persons who desire to establish similar baths. 47 4eow*

PORTABLE STEAM ENGINES.—S. C. HILLS, No. 12 Platt st., N. Y., offers for sale these Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, from 2 to 10 horse power, suitable for printers, carpenters, farmers, planters, &c. A 2 1-2 horse can be seen in store, it occupies a space 5 by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. 29 e3w

JAMES F. STARRETT & SON, Pattern and Model Makers, No. 352 West 27th street, near 11th Avenue, New York. Machine Patterns and Inventors' Models of every description made to order with dispatch. 45 6eow*

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Science and Art.

The Art of Dyeing.—No. 34.

DYEING FEATHERS—In our last article the method of dyeing feathers black was described, and although it was not intended originally to say any more respecting them, another article on the subject will be found useful to many, as such information is difficult to obtain.

The feathers of birds colored with the richest hues, are one of the most beautiful ornaments in animated nature. Some savage nations have exhibited great skill in blending the beautiful feathers of birds into various articles of dress, but the ancient Mexicans carried the arranging of colored feathers to such a degree of perfection as to use them the same as we do letters. Feathers are used in dress in all countries, and it will have been observed that they become fashionable ornaments about every ten years.

All feathers in their natural state are somewhat greasy, and resist efforts to color them in that condition. This grease must first be removed by steeping them for about fifteen minutes in very strong warm soap suds, after which they are washed, and are fit to be dyed. Being of an animal substance, their nature is akin to that of wool and silk. The same coloring matters and processes are therefore employed to dye them as for silk dyeing, only they require a little higher temperature of liquor, and more time in it. They are colored by themselves in small neat copper kettles, and carefully handled. By using the same substances, therefore, and pursuing the same methods as those described in the foregoing articles for dyeing silk, the same kinds of colors will be produced on feathers. The strength of the mordants and the dye stuffs must be proprotioned to the weight of feathers. Blue is colored with the sulphate of indigo; yellow with turmeric made slightly sour with vitriol, and red with cochineal. Logwood, muriate of tin, and a little tartar will color them purple, and a mixture of the sulphate of indigo and turmeric will dye them green. Feathers for ladies' hats, however, should never be colored with turmeric, because sunlight soon dissipates it; fustic therefore should be used in place of the turmeric. Orange can be dyed with annato. They can be dyed a most beautiful gold color by giving them a light dip in annato, then dyeing them a full yellow on the top with a liquor of quercitron bark and the muriate of tin at a scalding heat. A rich maroon can be dyed by steeping the feathers for an hour in a strong hot liquor of peachwood, and a very little alum and logwood.

If feathers are carefully handled they can be dyed more easily than silk. Our farmer's daughters, by following the above directions, and using the receipts presented in preceding articles, may dye white feathers any color they choose.

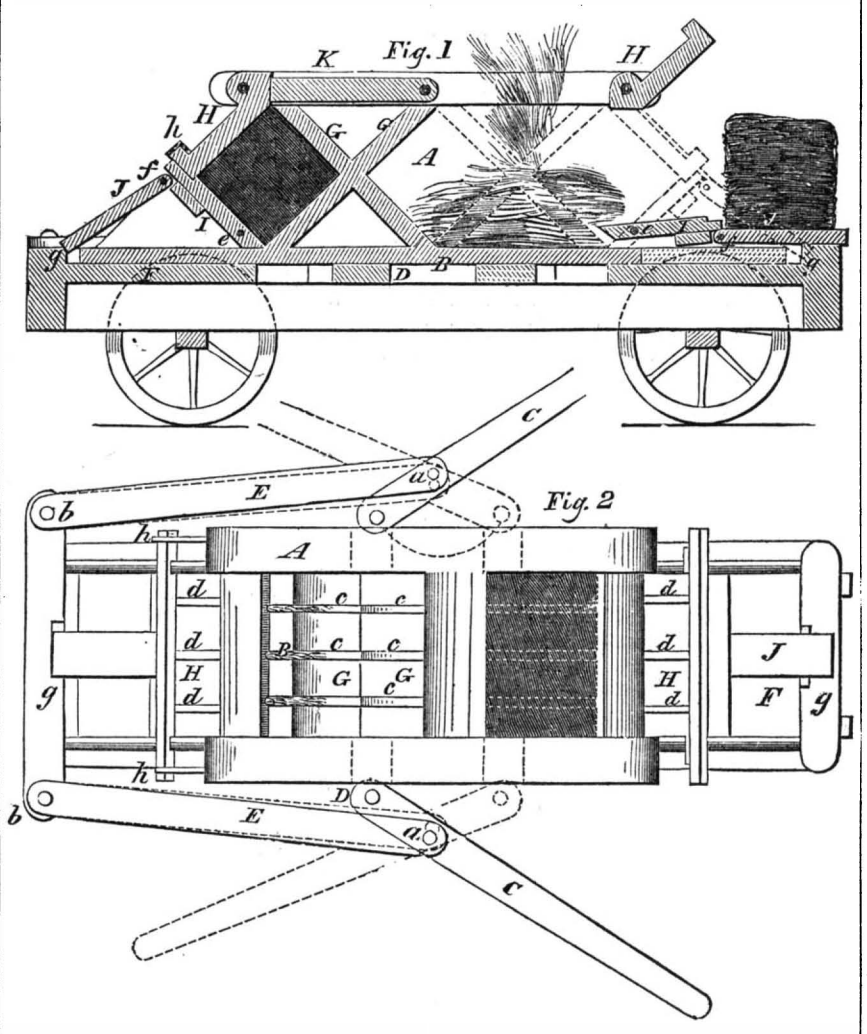
It will have been noticed that some artificial ostrich plumes have exceedingly long and delicate fibers. These are not natural, but made by tying a number of fibers together. This work must be done with great care, so as to have the knots very small. These fibers are gracefully curled and very showy; the curling is also done by art, and in a most simple manner.

Before the feathers are quite dry (after being dyed.) these fibers are drawn a number of times between the thumb and the edge of an ivory knife, like that used by book folders, and from this action become beautifully curled. This operation must be performed delicately, and continued until the feather is dry. To facilitate the operation, it is generally carried on before a fire. The curls thus produced will not come out again until the feather becomes wet. A feather may be dyed in varigated colors by suspending it by a cord and immersing one end in the dye liquor, then the other in a different liquor. Thus, to color one part of a feather yellow and the other green, suspend or hold the feather in a turmeric or fustic liquor, then take it out and wash it, and add a little sulphate of indigo to the same liquor, and hold that part of it to be dyed green (excluding the part to be kept yellow) in it for ten minutes, when it will be colored green. In this way, by carefully handling in different dye liquors, one feather may be dyed so as to have part a purple, another part yellow, another part blue, another green, and another red. This art is a very interesting one to practice. By a little ingenuity and taste, many young ladies might introduce some new and beautiful articles of domestic manufacture composed in part of colored feathers.

Regatta.

The Regatta of the New York Yacht Club took place at Glen Cove on the 3rd inst. The winner was a small sloop, 16 tuns burden, named the *Katy-did*. The *Widgeon*, a new yacht by George Steers, though not the winner, was esteemed the best sailer.

MANNY'S IMPROVED HAY PRESS.



The annexed figures represent an improved Hay Press, for which a patent was granted to Pells Manny, of Waddam's Grove, Ill., on the 17th of April last.

Fig. 1 is a vertical longitudinal section of the press, the plane of section being through the center, and figure 2 is a top view of the press. Similar letters indicate like parts.

A represents a rectangular box or case having a sliding bottom, B, to each side of which, at about its center, there is attached by a pivot a lever, C. The levers are attached to the ends of a cross piece, D, which is secured to the under side of the bottom, B. The fulcra of the levers, C, are at the ends of levers or arms, E E, shown at *a*, fig, 2, and the levers or arms, E E, are secured by pivots, *b*, at one end of the base or platform, F, on which the box or case, A, is secured. To the upper surface of the center of the sliding bottom, B, there are secured two followers, G G, which are so inclined as to cross or intersect each other at right angles, fig. 1. These followers correspond in width to the interior of the box or case, A, as shown in fig. 2. The upper parts of the followers above the point of intersection have longitudinal slots or recesses, *c*, cut in them, as shown in fig. 2.

To each end of the box or case, A, and at its upper part there is attached a door, H, which is so arranged as to be allowed to swing up and down, the upper cross pieces of the doors having their ends fitted in the top side pieces of the box or case, so as to turn therein. The doors, H, have slots or recesses, *d*, cut through them.

The ends of the sides of the box or case, A, are not vertical but inclined, so that when the doors, H H, are down or closed, they also will be inclined at angle of 45 deg., and corresponding with the inclination of the followers, G G. The doors, H H, when closed cover only about one half the ends of the box or case, A, (the upper parts,) and there are consequently other doors, I I, one at each end of the box or case, which are secured to it by pivots, *e*, which pass through the sides of the box or case and into the sides of the doors. The doors, I I, when raised or closed are also inclined but in a reverse position to the doors, H H. The upper ends of the doors, I, rest or bear against the lower ends of the doors, H, and the doors, I, are secured in a closed state by bars, J, one end of which is secuerd by pivots, *f*, to the upper ends of the doors, I, and the opposite ends fit in notches or recesses, *g*, in the ends of the base or platform, F. The upper doors, H H, are secured in a closed state by hooks, *h*, which catch over the lower cross-piece of the doors. To the upper part of the box or case, A, and at about its center there is attached a lid, K.

Suppose the operation of pressing to be now first commenced. The doors, H I, at each end of the box or case, A, are closed and the hay to be pressed is placed in the box or case, A, at one side of the lid, K, and the lid is then closed over the hay. Power is then applied in any proper manner to the levers' C C, and the sliding bottom, B, is moved, and with it the followers, G G, and the hay is compressed in the form of a square bale between the doors, H I, at one end of the box or case, and the followers, G G, it being understood that the upper part of one follower, and the lower part of the other, form the face or pressing surface at each side of the two followers, and as the doors, H I, are inclined to correspond inversely with the followers, it follows that the hay will be compressed in the form of a square bale. When the hay is compressed the doors, H I, are opened and the bale withdrawn. The slots, *c* and *d*, afford facilities for hooping the bale. While the hay at one end of the box or case is being compressed, or while the bale is being hooped or removed, hay is placed in at the opposite end to be compressed at the return movement of the followers.

By this press, a bundle of hay is pressed at each movement of the followers, and consequently no time is lost in running back the followers and hooping the bale, as this is done while the box or chest is being filled for the succeeding bale. By having the followers and box or chest so arranged as to press at each movement of the followers, the levers, C, are allowed to have a short purchase, as the followers are not required to be moved so far to receive the same amount of hay, consequently a proportionate amount of power is gained by having the followers and doors in inclined positions, as shown, the hay is compressed towards the center of the bale, and the pressure which in the mass of presses is exerted against the sides of the box or case, is in a great measure avoided.

More information respecting this convenient press for hay, cotton, &c., may be obtained by letter addressed to the patentee at Waddam's Grove.

Death of an American Engineer in Europe.

Major T. S. Brown died at Naples on the 30th of June last. He was at one time chief engineer of the New York and Erie Railroad. He was selected by the Emperor Nicholas to fill the place made vacant by the death of Col. Whistler. He lost his health in Russia, and while seeking relief in a more genial clime, he departed this life.

Literary Notices.

THE NATIONAL MAGAZINE.—This high-toned moral magazine for August, contains a wood cut and sketch of the lamented Rev. G. G. Cookman, who was lost on board the steamship *President*. It also contains the "Acadia" of Longfellow, illustrated with many beautiful engravings. It also contains a very good short sketch of James Watt, but the wood-cut of his statue accompanying it, is a very indifferent one indeed.

THE WESTMINSTER REVIEW—This able foreign Quarterly, for July, has been promptly issued by Messrs. Leonard Scott & Co., 54 Gold street. It contains articles on Spinoza, International Immorality, Self-Education, Physical Errors of Teetotalism, The Earth and Man, the Foreign Policy of the United States, and Cotemporary Literature. It is a splendid number. The Reviews, published by L. Scott & Co., are the best in the English language.

COACHMAKER'S MAGAZINE—This excellent Magazine for August, contains an engraving of the neatest Phæton, named "Saladee's Extension Phæton," we ever saw; besides this, there are engravings of a new Sulky, a light Rockaway, and a Box Buggy. It is an excellent number.

THE MINING MAGAZINE.—This most useful Magazine has not been published lately so regularly as heretofore; we regret this, because it is so ably conducted, and contains so much thoroughly scientific information relating to Mining and Geology. Edited by Wm. J. Tenney, 98 Broadway.

NAUTICAL MAGAZINE—This Magazine for the present month contains some capital articles. It asserts that shipbuilding is but in its infancy, and has the "go-a-head" spirit in it. It is edited and published by Griffiths & Bates, 115 Nassau st.

THE COTTON PLANTER.—This is a small but a very excellent monthly, edited by N. B. Cloud, M. D., La Place, Ala. The two last numbers contain beautiful illustrations of the cotton plant in its various stages, accompanied with excellent essays on its culture and uses.

MUSIC—Oliver Ditson, Boston, has just published two new and beautiful pieces, viz., "Meet by the Running Brook," a duet; and "Moonlight Hours," a quartette, the poetry and music by J. G. Clark, a young poet and composer of music, and the author of quite a number of exceedingly sweet and popular pieces.

MECHANICS

Inventors, and Manufacturers

THE SCIENTIFIC AMERICAN.

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